THE ORF GENDER COMPENDIUM

INDIA'S G20 PRESIDENCY AND WOMEN-LED DEVELOPMENT

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Introduction: India's G20 Presidency and Women-Led Development

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INDIA, IN ITS G20 PRESIDENCY, has introduced an addition to the lexicon on women's empowerment—that of 'women-led development'—thereby influencing a paradigm shift in gender-based policymaking. As India nears the end of its G20 presidency, we are publishing this compendium that takes stock of women's lived realities in India and across countries of the G20. While member countries share an optimism fuelled by this very idea of 'women-led development', the path forward will require a recalibration of existing institutional and social norms. Challenging the status quo—the task required to implement policies that promote women-led development—is unlikely to be without setbacks. ORF curated this volume to support a global transformation from women's development to *women-led* development. With this publication, ORF joins the Indian presidency in calling upon G20 leaders to place women and girls at the helm of its mission—*One earth, one family, one future*.

The Indian presidency has urged the G20 leaders to uphold their previous commitments as contained in the 2022 Bali Leaders' Declaration and the 2021 Rome Roadmap. It is also heightening its efforts to drive global progress towards gender equality and equity. Such a commitment encompasses various initiatives, including the formulation of national gender strategies and the systematic monitoring of progress through the collection of gender-disaggregated data in all member nations.

Proactively advocating for countries of the Global South, the Indian presidency is also dedicated to highlighting the concerns of non-member countries in the realm of gender and development. It has identified priority areas for fostering women-led development:

mitigating and adapting to climate change; nurturing entrepreneurship; bridging the gender digital divide; promoting grassroots leadership; and promoting education, skill development, and increased participation in the labour market.

Furthermore, the Indian presidency acknowledges the intersectionality of climate change and gender, and strongly advocates for women to play a pivotal role in the pursuit of climate justice. It emphasises the imperative for all climate-related policies to adopt an inclusive and gender-equitable approach. In the W20 Communiqué, released in June 2023, the Indian presidency underscored the importance of ensuring women's full and meaningful engagement in decision-making platforms for climate action, such as the 28th Conference of the Parties of the UNFCCC (COP28) scheduled to be held later this year. Additionally, it calls for the mainstreaming of gender-responsive policymaking, including those related to countries' Nationally Determined Contributions (NDCs). The presidency also seeks to instil a strong gender orientation in fiscal allocations for climate action, infrastructure development, and financial commitments like the UN Loss and Damage Fund established at COP27 in November 2022.

Fostering women's entrepreneurship can catalyse women-centric development, not just in India but globally. The Indian presidency emphasises that women entrepreneurs wield a vital influence in advancing national economies, fuelling GDP growth, job creation, and the provision of essential goods and services. Acknowledging the multifaceted challenges that impede the establishment and expansion of women-led enterprises, the Indian presidency advocates for policies addressing the persisting legal, regulatory, and societal obstacles, alongside enhancing access to capital and financial services.

The Indian presidency extends its efforts towards broader market access, encompassing public and corporate procurement, supply chain inclusion, and adoption of innovative technologies. These endeavours include those in burgeoning sectors such as space, green, blue, and circular economies. Among the array of targeted policy proposals, the establishment of women-focused business centres emerges as a cornerstone, as it could facilitate the growth and transition of women entrepreneurs from informal to formal status.

Furthermore, concerted effort is underway for institutionalising gender-responsive public procurement programmes across the G20 nations. The initiative includes the formulation of national targets by the year 2030, aiming to align public procurement practices with gender-inclusive objectives.

A crucial obstacle to the progress and advancement of women and girls across geographies is the pronounced gender-based digital divide. The existing disparities in access to and utilisation of digital technologies are exacerbating a spectrum of economic and social challenges facing women and girls. Bridging these gaps can result in substantial benefits, not only for the current generation of women but for future cohorts with unmet need for engaging in productive economic activity and being part of decision-making processes. The Indian presidency is re-energising efforts to mitigate the digital gender gap, aiming to halve it by 2030. This mission involves tackling barriers related to affordability, skills, access, security, and the adoption of digital technologies by women in the G20.

Particular attention should be paid to crafting policies that will prevent the duplication and amplification of gender biases in the domains of Machine Learning (ML) and Artificial Intelligence (AI). Among others, the W20 Engagement Group recommends the implementation of a minimum 15-percent tax reduction or equivalent incentives tailored for women-led technology startups and female entrepreneurs at the helm of tech-powered enterprises.

Within the spectrum of priority areas, the Indian presidency identifies grassroots leadership by women as a pivotal force driving the realisation of its G20 vision for women-centric development. Empowering women to assume leadership roles and become catalysts for societal transformation remains a critical endeavour. Equally vital is the cultivation of societal acceptance for this transformative paradigm, fostering a climate that actively encourages systemic changes that will help nurture women leaders.

Drawing from India's successful experience over the past three decades, a notable accomplishment emerges in the form of women securing nearly half of all *sarpanch* (village leader) positions—numbering 250,000—across the country's massive territory. These local leaders wield influence within the gram panchayat, which constitutes the third tier of India's democratic set-up and serves as a locus

for localised governance decisions and is steered by elected leaders. The ascent of women to these positions is emblematic of their increasing role in guiding pivotal decisions that shape society and the economy.

While policies on reservations and quotas often face resistance due to concerns of insufficiency in candidates, India's trajectory showcases a gradual easing of this constraint in the recent years. Notably, the number of women participating in assembly elections has risen six-fold over four decades. The Indian model, marked by a bottom-up approach to cultivating women's leadership at the grassroots, has emerged as a successful blueprint with far-reaching applicability in other parts of the globe.

Acknowledging education as both a fundamental human right and a vital conduit towards fostering a more harmonious and prosperous society, the Indian presidency seeks to propel the education, skill development, and labour market involvement of women. The indispensable economic contributions of women need to be given due recognition and equitable remuneration, supported by measures that facilitate decent work, the equitable sharing of caregiving responsibilities, the fortification of public social infrastructures, and protection against gender-based violence.

Particular emphasis is placed on upskilling women in emerging sectors and STEM fields. The imperative for improved access to a range of affordable hygiene, health, and nutritional products and services for women and girls is also underscored. India's achievements in reducing maternal mortality over the past two decades hold valuable insights, particularly for nations in the Global South that grapple with persistently high maternal mortality rates.

The Indian presidency has also strived to emphasise the promotion of inclusive research in the realms of health, medical devices, and pharmaceuticals. In pursuit of heightened labour market participation, there is a concerted drive to adopt and enforce anti-violence legislation and workplace safety measures as defined by the ILO Convention 190. Simultaneously, there are efforts to legislate gender pay gap reporting across the public sector, private sector, and publicly traded firms, which could be instrumental in reducing gender-based disparities within the workforce.

A cornerstone of the strategy pertaining to the promotion of women's economic engagement is augmenting funding for a "universal basic care basket." This means standardising, professionalising, and formalising the care economy to build

a conducive environment for women's economic participation. Care focuses on childcare, elderly care as well as care for those with disability. Building affordable and high-quality care infrastructures within communities can free-up women's time and allow them to avail economic opportunities in the labour market.

There needs to be a renewed push to deliver on past UN commitments such as the one by G20 donor countries to provide 0.7 percent of GNI to support global development. The development of care infrastructure across member countries could be a critical component in growing women's economic participation across the G20 countries. There is also a need to design and implement policies that protect and improve maternity and parental benefits to support equitable care responsibilities. This is an important element in supporting families, and especially women who bear the disproportionate burden of care work, given the rapid pace at which families are nuclearising everywhere.

The ORF Gender Compendium: India's G20 Presidency and Women-Led Development is a collection of insightful essays that examine some of the most critical challenges facing women in the G20. These pieces outline ambitious yet pragmatic visions on women's development and their role in modern societies. Although all member countries of the G20 have made remarkable gains in the last decade, we are also witnessing increasingly divisive societies where uncertainties pose disadvantages to vulnerable groups including women. Our contributors engage with the landscape of women's position in today's world by exploring and reimagining relevant areas of gender scholarship such as entrepreneurship, care economy, climate-smart agriculture, water governance, education, livelihoods, and leadership.

Each chapter in this compendium offers nuanced reflections on the myriad ways women reposition themselves as an integral part of our economy and democracy. Informed by empirical evidence and rigorous research, the essays in this volume hope to ignite conversations and policy action. While they focus primarily on India, they offer wider lessons that pertain to countries of the Global South that are experiencing similar obstacles to advancing the goal of gender equality.

In Chapter 2, *Sharon Buteau* and *Diksha Singh* take up the case of women's under-representation in the domain of Micro, Small and Medium Enterprises (MSMEs). They find that women entrepreneurs in India play a critical role in advancing economic growth but continue to face massive gendered barriers to making their

enterprise thrive. The authors offer an intersectional approach that showcases insights to propose solutions of 'what works' to sustainably address credit gaps for women entrepreneurs.

Chetna Gala Sinha and *Ashish Desai* carry the development narrative forward by discussing how leveraging product innovation can provide rural women entrepreneurs access to capital. Using the case of *Mann Deshi Mahila Sahakari Bank (MDMSB),* the authors chronicle the market experience of Cash Credit (CC) loans, an innovative non-group loan product, along with building requisite financial and digital literacy for rural women to effectively manage and overcome barriers to repaying their loans.

An impediment to women's participation in the economy, and their retention, is the challenge of unpaid care work (UCW). *Mitali Nikore* underlines how women continue to bear the greater share of unpaid care work—in India, for example, women spend eight times more of their time on UCW compared to men. The essay offers plausible solutions for recognising, reducing, and redistributing care work.

In their chapter, *Renana Jhabvala* and *Nandini Dey* demonstrate the power of women-led collective enterprises. They walk readers through the incredible journey of the Self-Employed Women's Association (SEWA) to demonstrate its role in the economic empowerment of India's rural women. They describe the various forms of collective action needed to enhance women's bargaining power through cooperative enterprises to allow greater market access by investing in local gender leadership.

Creating opportunities for girls to pursue STEM fields at the primary and secondary levels is equally crucial in nurturing cohorts of women leaders. This is underlined in the essay authored by *P. Sivakumar* and *Niyathi R. Krishna,* which finds that despite India's growing number of women STEM graduates, the gendered 'leaky pipeline' remains endemic, preventing women from reaching the top rungs in scientific research. This chapter explores the prospects of innovation and research to encourage alternative, egalitarian narratives of women in leadership positions in STEM.

Another wicked challenge disproportionately impacting women across the globe is the climate crisis, and that is the subject of the contribution from *M. Manjula.* In her essay, she argues that women agricultural farmers need the requisite skills

to adapt their cropping methods to the vagaries of the weather exacerbated by climate change. She calls for the promotion of climate-smart methods to mediate gender gaps in agriculture.

Women also bear the brunt of climate-induced water scarcity, write *Ambika Vishwanath* and *Sanya Saroha* in the next chapter. Their analysis illustrates the relevance of the water-gender nexus in overcoming the barriers to water security faced by women in India. It ponders the potential positive outcomes of breaking down such obstacles, including improved health security and economic empowerment for women and girls.

Not leaving the girl child behind in the development roadmap, *Shoba Suri, Oommen C Kurian,* and *Sikim Chakraborty* evaluate the state of Madhya Pradesh's *Ladli Laxmi Yojana* (LLY) scheme in their essay. LLY provides financial assistance to families raising girl children and aims to prevent the incidence of sex-selective abortion. The authors investigate the LLY intervention using data on some of the most fundamental strands of gender equality such as improving sex ratio, changing mindsets within families leading to greater acceptance of the girl child, and investing in their health and education.

Among other interventions aimed at women's development, the story of *Pashu Sakhis* across India is a novel one. At the core of this programme is the training of women as livestock health service providers. *Arundhatie Kundal,* in the concluding essay, analyses the trickle-down benefits of this alternative community livestock extension approach. She demonstrates the potential of the programme in building women's entrepreneurship and the creation of social capital for women-led development at the grassroots.

We thank all our authors for their invaluable contribution to this compendium. We hope that these analyses will stimulate thoughtful and invigorating conversations on women-led development, not only across the G20 economies but beyond. We are particularly hopeful that young scholars will find these essays useful and we encourage them to take this work forward in the global pursuit of gender equality and equity.

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II.

Upscaling Women's Entrepreneurship: Call for Action, Evidence, and Agency

Sharon Buteau and Diksha Singh

Abstract

GLOBALLY, ONLY A LITTLE OVER one-third of small and medium enterprises (SMEs) are owned or operated by women. While this is a global average, the disparities are more prominent and the consequences much more severe for women in low- and middle-income countries. Evidence suggests that bridging gender gaps can accelerate socio-economic development. Women entrepreneurs, for example, hurdle more barriers compared to their male counterparts in starting, operating, and growing enterprises. These obstacles include poor access to capital, markets, and skills, as well as technological, social, cultural, and psychological constraints. Access to finance is critical but would only be effective as part of a more holistic, integrated approach. The intersectionality between gender, social equity, policy, income-generating activities, and technology impacts the ability to accrue welfare benefits from increased financial access. Therefore, there is need for aligned action across various actors within the entrepreneurship ecosystem. This article showcases insights from such integrated approaches to propose solutions of 'what works' to sustainably address credit gaps for women entrepreneurs.

Introduction

THERE IS GROWING evidence that investing in women's entrepreneurship development is good for business and economic growth.[1] Research by G20 EMPOWER suggests that equal participation by men and women in economic activities can translate to a GDP increase of US$5 trillion per year.[2] Entrepreneurship is one of the many pathways to close gender gaps in access to economic opportunities. Despite this significant potential, India ranked 57th out of 65 countries surveyed for the Index of Women Entrepreneurs in 2021.[3] Moreover, the World Economic Forum's *Gender Gap Report 2022* ranked India 143rd out of 146 countries in their 'Economic Participation and Opportunity' indicator group.[4] While the number of women-led Micro, Small and Medium Enterprises (MSMEs) in India has seen a substantial rise between 2005-2015, these account for only 20 percent of India's 63 million MSMEs.

Two complex and broader structural challenges impede the expansion of women's participation in the entrepreneurship space—a stagnant MSME sector and plummeting rates of women's labour force participation. This is compounded by the dearth in standardised, comprehensive, and reliable data required to gain deeper insights into the characteristics of women-led and -operated enterprises to inform policy design. The Indian MSME sector represents 30 percent of GDP and creates approximately 120 million jobs. However, the enterprise sector is afflicted with weak growth (e.g., the share of MSME Gross Value Added to GDP has remained stagnant in the range of 26-30 percent contribution, between 2011 – 2020) and dominated by businesses with 0–1 employees.[5] Microenterprises are typically unregistered, informal, and characterised by low growth and employment, and there is a severe deficit in formal, productive, and job-creating small and medium enterprises.[6] A majority of such enterprises lack formal credit histories and data trails and are largely financed by informal credit sources. Although the current addressable MSME credit gap is estimated at INR 25.8 trillion, 84 percent of the existing credit to this segment flows from informal sources.[7]

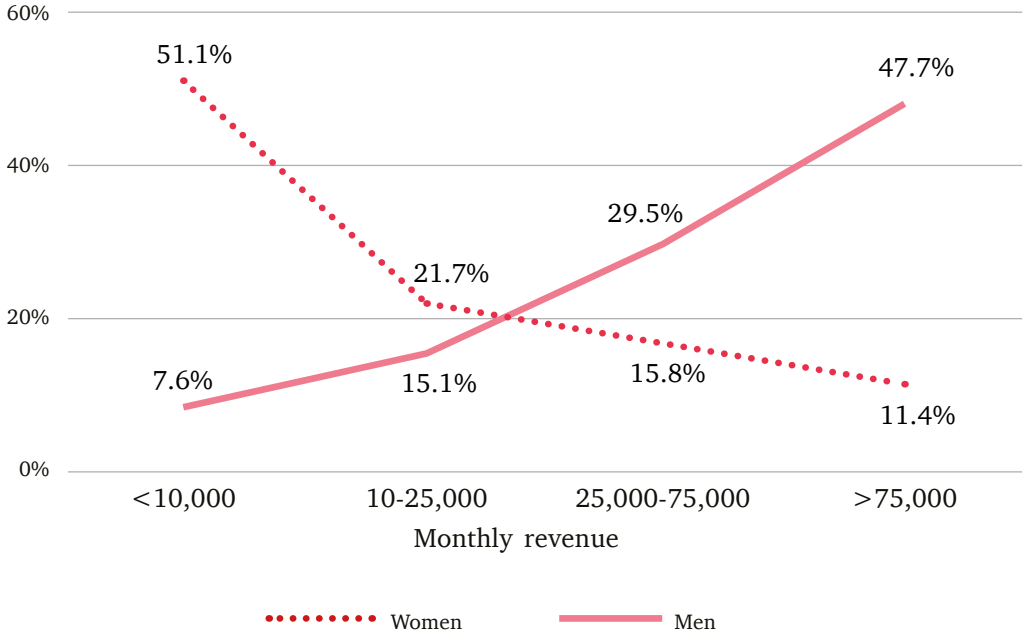
The decline in female labour force participation between 2004 and 2021 and the subsequent stagnation has received attention from policymakers and analysts alike.[8] This decline has occurred despite progress in women's education outcomes as well as a decline in fertility rates.[9] Since female entrepreneurship drives a significant portion of women's employment, poor enterprise productivity—coupled

with barriers such as weak access to capital, markets, technology, and skilling—has adverse repercussions for gender equity in labour markets. In addition, social norms surrounding women's active participation in the economy and the lack of key enablers such as affordable and practical childcare options are significant impediments.

Problem Statement

A review of the current scenario of women's entrepreneurship from the most recent National Sample Survey Office (NSSO) data (73rd Round) shows the scope of the problem. Women's enterprises comprise only around 20 percent of the total enterprises across India's rural and urban areas. Disaggregating enterprises by monthly revenue provides deeper insights into their size and scale. Figure 1 summarises the distribution of male and female entrepreneurs by monthly revenue buckets. The majority of women entrepreneurs have a monthly revenue of less than INR 10,000 and therefore operate at a subsistence level; only 7.6 percent of male entrepreneurs have a similar monthly revenue. With the increase in monthly revenue size, the number of women-led enterprises across subsequent revenue categories decreases, with only 11 percent of women-led enterprises reporting a monthly revenue of over INR 75,000.

Figure 1: Distribution of Entrepreneurs, by Gender and Monthly Revenue (INR)



Source: NSS 73rd Round

Useful insights emerge from the NSS (73rd Round) data, as indicated in Table 1. Among enterprises with a monthly turnover of less than INR 75,000, women-led enterprises have similar total profits compared to those led by men, despite having lower turnover. They also have similar loan access. However, the median loan amount is significantly lower for women, with men receiving more than double the loan amounts. Overall, enterprises owned by men are more likely to be registered, although the percentage of registered firms remains low for both genders. The uptake of government assistance is similarly low, below 1 percent, for enterprises led by either men or women.

Table 1: Business and Financial Characteristics of Enterprises, by Gender

	Women-Led Businesses				Men-Led Businesses			
	<10,000	10,000–25,000	25,000–75,000	>75,000	<10,000	10,000–25,000	25,000–75,000	>75,000
Median Monthly Revenue (INR)	4,800	13,965	36,000	153,100	6,128	17,500	43,000	224,000
Median Monthly Profit (INR)	4,290	11,440	26,080	88,800	4,960	12,260	26,220	133,560
Loan (% yes)	2.14	3.92	11.92	18.85	3.28	8.09	12.76	18.71
Median Loan Amount (INR)	10,260	10,300	20,240	51,000	24,240	30,000	65,280	112,200
Registered Enterprise (% yes)	1.77	4.67	13.77	36.84	8.2	17.41	33.21	47.9
Received Government Assistance (% yes)	0.29	0.61	1.18	1.02	0.3	0.36	0.93	0.99

Source: NSS 73rd Round

In terms of employment, both women- and men-led enterprises have none or few employees, with a small portion (around 10 percent) of enterprises having a monthly turnover of over INR 75,000 reporting three or more employees. There are notable gender differences in the location of enterprises: a large majority of women-led enterprises are home-based and are thus often less visible than men-owned ones. Women's entrepreneurial activities are also largely concentrated in traditional sectors such as garment manufacturing and retail. With the exception of retail, there is very little overlap with the industries men usually operate in.

Table 2: Employment and Location of Enterprises, by Gender

	Women-Led Businesses				Men-Led Businesses			
	<10,000	10,000–25,000	25,000–75,000	>75,000	<10,000	10,000–25,000	25,000–75,000	>75,000
Staff								
No employee	99.94	99.1	93.03	77.67	98.63	97.14	88.48	68.38
1 to 2 employees	0.06	0.78	6.09	13.5	1.26	2.61	10.5	21.16
More than 3 employees	0	0.12	0.88	8.83	0.11	0.25	1.02	10.46
Location								
% Home-based	97.2	89.61	68.32	41.88	59.43	47.01	34.25	24.93
% Fixed store	1.64	7.83	21.28	43.75	12.27	24.71	34.54	61.58
% Without fixed premises (Street vendor)	0.35	0.97	5.07	7.29	15.18	14.27	17.4	6.12

Source: NSS 73rd Round

Key Findings

Unpacking complexity and understanding 'what works'

As highlighted in the previous section, efforts to increase women's entrepreneurial activity need to be tackled from two interconnected perspectives: (i) increasing the flow of women entering entrepreneurship; and (ii) ensuring that women entrepreneurs have access to critical resources to grow within the ecosystem. Access to timely, affordable finance is an important factor for enabling progress on both these fronts, along with a strong enabling ecosystem that tackles barriers beyond financial access.

- Increasing the flow of growth-oriented women entrepreneurs

According to an IFC report,[10] a majority of the financial barriers (e.g., lack of collateral, underdeveloped financial infrastructure, and high cost of capital) and non-financial ones (e.g., gender norms and biases, limited business education, lack of access to networks, and lack of adequate mentors) are faced by women-led businesses in the start-up stage.

Globally, there are gender differences in start-up motivations. The 2021–22 GEM Women's Entrepreneurship report found that job scarcity and a desire to make a difference are among the two primary motivations of women entrepreneurs in India. Lack of childcare support and a desire for economic security have also been reported as reasons for self-employment, as opposed to primarily commercial reasons. These differences in motivations also influence women's access to capital and enterprise performance.

Another important aspect of India's entrepreneurship landscape is the variation in women's entrepreneurial activity across states, related to the preconditions for enabling entrepreneurship. Each state has its own entrepreneurship and start-up policy, and these play a role in driving entrepreneurship development. Women's entrepreneurial performance varies across states, based on women-specific initiatives. States like Karnataka, Tamil Nadu, Kerala, and Telangana have a higher number of incubators enabling entrepreneurship development and have a higher proportion of women-led enterprises, as depicted in Table 3.

Table 3: Status of Women Entrepreneurship and Incubators, by State

State	Percent of women-led enterprises	Percent of women entrepreneurs with access to finance	Number of Incubators
Andhra Pradesh	24.7	11.4	33
Assam	5.5	10.2	11
Bihar	4.9	6.9	17
Chhattisgarh	8.4	1.5	11
Delhi	9.3	5.7	77
Gujarat	24.9	1.7	70
Haryana	10.1	3.4	29
Himachal Pradesh	12.9	4.5	4
Jammu and Kashmir	10.6	0.5	11
Jharkhand	19.6	7	9
Karnataka	24.4	10.8	109
Kerala	20.8	14.6	47
Madhya Pradesh	13.8	0.9	37
Maharashtra	16.8	6.1	97
Odisha	14.9	5.4	37
Punjab	15.3	3.7	25
Rajasthan	14.1	0.8	42
Tamil Nadu	26	9.1	112
Telangana	37.3	1.9	71
Uttar Pradesh	9.6	2.6	76
Uttarakhand	5	7.1	13
West Bengal	32.7	5.1	18

Source: State of women entrepreneurship in major states, NSSO, Startup India.

Note: In the table above, shades of red and orange represent low levels of entrepreneurship and incubation activity within a state relative to other states, shades of yellow represent medium activity, and shades of green represent high levels of activity.

The idea of an 'entrepreneurial ecosystem' has gained more attention in the literature in recent times, highlighting the importance of coordination and collaboration between stakeholders. Mason and Brown define an ecosystem as "a set of interconnected entrepreneurial actors (both potential and existing), entrepreneurial organisations (e.g., firms, venture capitalists, business angels, and banks), institutions (universities, public sector agencies, and financial bodies), and entrepreneurial processes (e.g., the business birth rate, numbers of high growth firms, levels of "blockbuster entrepreneurship," number of serial entrepreneurs, degree of sell-out mentality within firms, and levels of entrepreneurial ambition) that connect, mediate and govern the performance within the local entrepreneurial environment. Isenberg also highlights key elements for creating a "self-sustaining entrepreneurship ecosystem: conducive policy, markets, capital, human skills, culture, and support."[12]

To grow women-led enterprises, there is a need for stronger regional entrepreneurship ecosystems, such as in Tier 2 and Tier 3 cities and towns, which can encourage early-stage activities and motivate women to pursue enterprises in conventional and non-conventional sectors. In urban and peri-urban areas, incubation and acceleration efforts are being anchored in the higher education infrastructure and integrated with programmes such as the Atal Innovation Mission. A stronger regional focus is also a key characteristic of programmes being implemented by the private sector and multilateral organisations, such as GIZ's Project Her & Now; 24 percent of the incubation participants from Cohort 1 of GIZ's Project Her & Now reported setting up their business after the training.[13] Further, GIZ is collaborating with the Atal Innovation Mission to roll out the WINcubate Training Programme for AIM Incubators and Innovation Centres and equip them with adopting a gender-focused approach.[14]

A global study by the Global Accelerator Learning Initiative suggests that including women in selection committees and mentorship pools can enable greater participation of women entrepreneurs in acceleration programmes.[15] While there is scant evidence on the role of women-focused start-up incubators and accelerators, emerging insights from implementation suggest that these approaches can encourage aspiring/growth-oriented entrepreneurs to pursue entrepreneurial activity and provide them with access to essential support services such as training, mentorship, and network. These enabling conditions can have a positive spillover effect on women's access to formal credit by improving the

flow of information about seed funding avenues, enhancing women's confidence to pitch for funding, and improving their access to investor networks. Networks can also be instrumental for more remote and disconnected women. An assessment of 725 projects in Rang De, a digital microfinance crowdfunding platform mainly serving women borrowers, found that while technology can be facilitative, factors such as environmental and project-level relationships between lenders, borrowers, and intermediary agents are critical.[16] Thus, funding success is more a matter of environment and organisational factors than the specifics of the enterprise. This also highlights the importance of the gender-specific roles of intermediaries and of ensuring gender equality so that biases are not replicated in the digital space.

According to a 2022 NASSCOM and Zinnov report, only 18 percent of start-ups in India have at least one woman founder or co-founder,[17] although the number of women founders in India grew by 2.68 times between 2016 and 2021. Additionally, the number of women founders of unicorns (start-ups with a valuation of US$1 billion or more) rose from single digits in 2016–17 to 19 (28 percent of all unicorn founders in India) in 2022.[18] At the same time, the NASSCOM report found that, between 2019 and 2022, women-led start-ups secured only 17 percent of investment deal counts. Less than 8.5 percent of venture capital was invested in women-led start-ups between 2014 and 2022.[19] This scenario may be changing: a Tracxn report shows that, in 2022, women-led start-ups accounted for 11 percent of the total funding received, up from 8 percent in 2021.[20]

The Government of India has introduced various initiatives to bridge the gap in access to funding and markets. In the FY23-24 budget, the government acknowledged the persistent gender divide. The proposition of the finance minister for states to set up 'Unity Malls' in their capitals is encouraging and can be leveraged to ensure that women-owned enterprises have equal access to markets. The various schemes enabling women in start-ups include the Bharatiya Mahila Bank Business Loan, the Dena Shakti Scheme, the Udyogini Scheme, the Women Entrepreneurship Platform, and the Pradhan Mantri Mudra Yojana. These schemes provide loans at interest rates lower than the base rate and without requiring collateral for women entrepreneurs, making it easier for them to access loans and start their businesses. The UDYAM portal consists of 18 percent of women-owned SMEs.[21] With effect from 1 December 2022, the concession of a 10 percent

guarantee fee and enhanced guarantee coverage of 85 percent against 75 percent in other cases was introduced in loans given to women entrepreneurs under the Credit Guarantee Scheme for Micro and Small Enterprises (CGTMSE).

Exposure to role models is another important factor influencing entrepreneurial intentions and motivations. Austin et al. found that both self-efficacy and the number of entrepreneurial role models were associated with stronger entrepreneurial intentions.[22] Access to role models also varies by sector, as women's entrepreneurship activity is typically concentrated in traditional sectors such as retail and personal services.

- Ensuring that women entrepreneurs are able to grow within the ecosystem

Women-led businesses are characterised by different types of ownership structures and vary according to the size of the firm and the sector in which they operate. One of the hindrances to women entrepreneurs accessing finance is the lack of understanding among supply-side institutions of their specific requirements. Banks and other financial institutions need to have a better understanding of the market potential and specific constraints faced by women entrepreneurs. Therefore, a segmented approach is required to allow for effective utilisation of resources. The segmentation of women-led enterprises can be based on their motivations or aspirations, readiness, or business acumen, and their ability to scale their business. Creating such archetypes of entrepreneurs allows supply-side institutions to capture the commonalities in needs and behaviours and customise the support extended to them as a cohort. In some of the studies undertaken by LEAD at Krea University, personas of women entrepreneurs were created to disaggregate enterprise characteristics; for instance, enterprises running home-based businesses based on their personal characteristics[a,23] and their level of income and motivation.[b,24] Such an approach can enable the tailoring of financial services and products based on the specific needs of population sub-segments.

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[a] Millennial Entrepreneur - young, educated, independent, risk tolerant; Striving Entrepreneur - middle-aged, makes own decisions, not risk-taking, mature business; and Latent Entrepreneur - long-running business, aspirational, risk-taking

[b] Subsistent, conventional, steadfast, and opportunity/aspirational.

The credit needs of women-run enterprises vary from a typical joint liability microfinance loan to a venture-state equity seed investment. These are interspersed with a wide variety of enterprises of different turnover sizes and business models. For a typical segment of women-run enterprises with credit needs higher than microfinance but lower than a collateralised loan, the IFC estimates a credit demand of INR 836 billion.[25]

Financial services also need to be reimagined as customised and swift products. The additions made to UPI in the form of credit lines allow women to access quick working capital loans and pre-approved loans. Combining this with the Open Credit Enablement Network (OCEN) leads to the democratisation of credit, wherein a women entrepreneur, nascent or seasoned, can harness her data trails for credit access. Financial institutions have the opportunity to provide customised online products to women entrepreneurs using the digital tools now available at their disposal.

OCEN as a framework allows women entrepreneurs to leverage their non-credit history data points for underwriting purposes. This includes using their savings accounts, tax returns, and insurance policies to construct a financial profile for suitable small-ticket loans with which they can build or improve their credit history one loan at a time. Beyond this, as social e-commerce start-ups like Meesho have shown, there is scope to leverage social media credentials to conduct psychometric profiling to provide suitable credit products.

There is a critical need for the gender sensitisation of frontline credit officers and direct selling agents (DSAs) to source more women entrepreneurs without taking a blanket view of higher credit risk. Often, financial institutions resort to 'gender-neutral' algorithmic underwriting to ensure that such biases are removed. However, such algorithms may suffer from a lack of gender positivity owing to the variations in women-run enterprises vis-a-vis male entrepreneurs. For example, a gender-blind algorithm may want an input on the location of the enterprise as a proxy for customer footfall, but that can bring down the success rate of loan approval for women-run enterprises, as more such enterprises might be running from home. Indeed, such a model may skip the fact that home-based women-run businesses conduct their operations digitally, such as through social media apps.

There is also merit in striking partnerships with corporate value chain/supply chain players and civil society organisations that have a better perspective of women entrepreneurs and their businesses. Digital transformation in the form of embedded finance through such intermediaries allows for quick, affordable, and customised credit.

Much like the different business sizes and revenue models of women-led enterprises, their type of financing also varies in terms of product structures. There is scope for a deferred repayment schedule so that business cash flows can stabilise. With the e-NACH facility readily available for financial institutions, there is scope for the de-risking of deferred repayment, such that women entrepreneurs can benefit from the capital in the form of more strategic investments without depending on other family members. As highlighted earlier, banks now provide personalised loans based on banking history. Along with the credit facility now available on UPI, this allows for more sachetised and recurring credit products, along with customer awareness and empowerment avenues.

Women-run enterprises tend to be concentrated in more traditional sectors that are often overlooked by financial institutions due to being perceived as higher-risk. This leads to a vicious, self-fulfilling circle. In the aftermath of COVID-19, there is a need to take a detailed look at the emerging 'new digital economy' that allows for asset-light and remote-operating models. These new-age sectors leverage social media and comprise a higher share of women entrepreneurs who have taken their businesses to the digital space. With the establishment of the ONDC architecture, there is further scope for women entrepreneurs to not be tied to the monopolist tendencies of e-commerce giants and earn better margins as well as cater to new markets and segments.

Literature on women's entrepreneurship in developing economies also points to the need for a comprehensive 'package' approach to address the multiple constraints faced by women; interventions that address gaps in access to finance may be more effective when coupled with skilling or mentoring initiatives.[26] There is evidence that women entrepreneurs benefit from peer groups in terms of both developing technical skills and gaining psychological benefits.[27,28] Given prevalent social norms and harmful self-conditioning, many women entrepreneurs have modest ambitions and aim to remain small, so that they can conduct the business 'part time'. This perpetuates a vicious cycle where supply-side institutions also end up taking a

similar view of such enterprises. In this context, access to dedicated business associations and incubators/accelerators can allow women to find avenues during the growth stage or when they are stuck in the 'valley of death,' when they need the fillip.

Recommendations

While this article focuses on India, the opportunity to accelerate progress within the wider ambit of G20 and W20 are immense. Given the complexity of the challenges, as well as the increasingly connected digital world we inhabit, cross-country partnerships such as G20 EMPOWER can mobilise expertise and unlock private sector capital to create shared accountability. Prioritising solutions remains one of the recommended pathways to ensure success and develop cooperation. While looking through the lens of what works, it is important to prioritise strategies and interventions that enable greater access to formal finance for aspiring as well as high-growth oriented enterprises. On the demand side, ecosystem players can focus on ramping up women-focused incubation activities as a first step to unlocking access to capital and other critical services such as skilling and mentoring.

On the supply side, removing frictions in financial service markets by tailoring financial services to the requirements of women entrepreneurs as well as building institutional capacity to service underserved segments is key to bridging credit gaps. Through implementing a solution-oriented lens, each country can leverage shared learnings to advance its agenda and create a robust national and local ecosystem for women's entrepreneurship. G20 EMPOWER can also serve as a platform to activate sustainable collaborations with the public sector, private sector, and civil society, reinforce women's economic empowerment and entrepreneurship development in the Global South, and advocate for better monitoring of progress in enabling women-led enterprises.

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III.

The Challenge for Microfinance Institutions: Product Innovation and Boosting Women's Financial Literacy

Chetna Gala Sinha and Ashish Desai

Abstract

MICROFINANCE INSTITUTIONS (MFIs) have played a key role in providing access to finance. While MFIs' joint liability group (JLG)[a] mechanism has facilitated women entrepreneurs' access to capital, it has become the de facto standard, with little being done to provide alternative products. Using the case study of the Mann Deshi Mahila Sahakari Bank (MDMSB)—set up in 1997 in rural Maharashtra to provide access to financial service products and financial literacy training[b]—this article chronicles the benefits that rural women entrepreneurs have derived from cash credit loans,[c] an innovative non-group loan product, as well as agency-building interventions (financial and digital literacy programmes) from MDMSB. It offers plausible policy recommendations to structurally support product innovation for rural women entrepreneurs.

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a JLGs are a group of between four to 10 people, mostly women of the same socioeconomic background, who come together for the purpose of availing a loan from a bank without any collateral.

b These services are provided through the Mann Deshi Mahila Foundation, a non-profit entity dedicated to the economic empowerment of rural women entrepreneurs.

c A type of overdraft loan.

Introduction

WOMEN'S EMPOWERMENT HAS become a crucial concern for many governments, non-government organisations, and multilateral agencies in recent years. It is increasingly being recognised that strengthening women's agency encourages them to participate in the workforce and increases their financial autonomy, in turn boosting national economic development.[1] In developing countries—where levels of education and skills are often lower, particularly among women—entrepreneurship may be the only viable route to enter the labour force.[2] However, they may encounter barriers to accessing capital, which need to be eliminated through financial inclusion while also building appropriate skills.[3]

The issue has long been on the global policy agenda. In 1975, the first World Conference on Women in Mexico[4] called attention to improving women's access to credit. In India, the microfinance concept originated in self-help groups (SHGs), a non-profit and donor-supported initiative.[5] Financial institutions with regulatory approval redefined the concept of SHGs to provide loans to individuals based on group assurance/guarantee, which eventually came to be called 'JLG loans'.[6] Commercialisation during the late 1990s and early 2000s meant that MFIs sought to operate with commercial capital on market-based business principles,[7] with the focus then shifting from outreach to profitability. Over the past decade, regulatory changes have aimed to address the challenge of over-indebtedness;[8] however, the ability to absorb exogenic covariate shocks that impact large groups of people across locations—such as earthquakes, floods, and health crises like the COVID-19 pandemic—remains an issue. Notably, MFIs primarily disbursed JLG loans based on the assumption that alternative financial products are unfit and prone to higher risk. Although the right product for the appropriate demographic group can yield substantial impacts,[9] innovative products are rarely put into use. However, besides the availability of an innovative product, only financial literacy can spur its use by enabling the individual to evaluate the relevant information and make appropriate financial decisions.

Challenges for Product Innovation in MFIs

The modern architecture of microfinance is based on leveraging social capital, where JLG loans facilitate and stimulate economic growth.[10] Traditionally, MFIs' financial performance has been assessed through profitability and risk-return.

Four parameters—outreach, repayment, efficiency, and profitability—are tracked to assess financial performance (see Table 1). These parameters reflect operational efficiency and effectiveness, and the successful utilisation of capital. Market share within the industry and profitability are the two main dimensions used to measure financial performance. Since most MFIs are not deposit-taking institutions, debt markets and MFI ratings also depend on key financial parameters.

Table 1: Indicators of an MFI's Financial Performance[11]

Product	Indicator
Outreach	– Number of Women Borrowers – Asset Book
Repayment	– Portfolio at Risk (at 30, 60, 90) – Non-Performing Asset
Profitability	– Cost to Income ratio – Cost per borrower
Profitability	– Return on Asset – Earnings Before Interest Tax, Depreciation and Amortisation

Source: Authors' own

Given that the target segment is vulnerable and susceptible to economic and health shocks, MFI institutions often resort to the traditional approach of group liability rather than experimenting with new products due to their emphasis on profitability driven by asset quality.

Cash Credit Loans: A Review

MDMSB has disbursed loans to over 200,000 women micro-entrepreneurs and has a balance sheet of approximately INR 800 million in FY 2022-23. In addition to providing the standard JLG loans, MDMSB also introduced cash credit loans.

The cash credit loan is an overdraft product that benefits women vendors operating in village markets by providing a credit facility to support their working capital. It is an individual loan with no collateral but requires co-guarantors from similar socioeconomic backgrounds (there are no group guarantees). This product allows flexible drawdown[d] within the approved limit and repayment depending on the

[d] Amount of loan that is availed from the sanctioned limit.

borrower's cash flow. The loans are disbursed upon digital request, and while Unified Payment Interface (UPI)[e] transactions are encouraged, marketplace banking for cash disbursement/collection is also facilitated (see Table 2 for a summary of the product features)

Table 2: Features of the Cash Credit Loan

Product Type	Cash Credit
Eligibility	– Age between 21 and 59 years – Women only – Has a business in the weekly market where the loan is sought – Has been coming to the market regularly for at least three consecutive months before seeking a loan – Business is not seasonal but conducted throughout the year
Documents	– Photo ID (Voter ID, Aadhaar card, PAN card, bank passbook) – Address proof (Voter ID, Aadhaar card, bank passbook, electricity bill, house Tax receipt) – Relationship proof (Ration Card)
Loan Category	Overdraft
Maximum Limit	INR 10,000 (can be increased to INR 20,000)
Interest Rate	24%
Disbursement Process	Digitally Savings Account
Collection Frequency	Weekly
Collection Value	Flexible repayment, however, customer is advised to pay at least 10 percent per month of the drawing power with interest
Collection Process	Digital collection enabled and physical visit for overdue
Fixed Refundable contribution	Contribution to share capital: INR 500 - Savings A/c minimum balance: INR 10
Non-refundable Fixed Charges	- Share Registration: INR 50 - Nominal Shares: INR 100 - Insurance Premium: INR 188 Total - INR 938
Loan Tenor	3 Years

Source: MDMSB

Unlike an overdraft, there is no sweep-out of the closing balance set, but the borrower decides how much money she intends to repay that week, enabling her to manage cash flow. Although there was no competition for the segment under discussion, informal credit emerged as a substitute product to cash credit (see Table 3 for a comparison).

[e] The Unified Payment Interface (UPI) provides real-time payments through mobiles across all member banks.

Table 3: Cash Credit Loans and Informal Credit

Product Type	Cash Credit	Informal Credit
Interest Rate	0.067% per annum on outstanding balance per day	– 1-2 % per day for loan outstanding. – For bullet repayment intra- day loan – 10% per day
Disbursement	Bank account	Cash
Collection	Digital Channel / Bank account	Cash
Financial Literacy education	Yes	No
Digital Skills enhancement	Yes	No
Follow RBI code of conduct	Yes	No

Source: Authors' own

As MFIs are regulated entities, they must balance outreach and profitability. The cash credit loan product enabled a return on asset of ~2.5-3 percent.

In addition to providing the cash loan product, borrowers also underwent formal financial literacy training that covered financial planning and the basics of banking, including digital banking.

Analysis and Findings

From the perspective of resources, new markets are created by focusing on value and developing an ecosystem. For an innovative product to have an effective outcome, it must either generate new markets based on latent demand or replace an existing fulfilment strategy. This study uses the 4A framework (accessibility, affordability, availability, and awareness) proposed by business scholar C.K. Pralhad[13] to evaluate the cash credit loan product. Data was collected through interviews with 35 borrowers in the district of Satara, Maharashtra. The respondents were in the 24-51 age group and belong to similar educational backgrounds (almost all had a high school education but were not graduates), and are primarily engaged in home-based livelihood activities with monthly sales of approximately INR 10,000 (with about INR 1,850 in profits).

The interviews were conducted in the Marathi language, and were semi-structured based on a preliminary questionnaire about financial literacy and financial skills, but the conversation were not confined to the bounds of the questionnaire. All respondents were assured anonymity.

Affordability: The affordability of the cash credit product, which has no drawdown cost,[f] was a significant benefit for the respondents. "I do not have to pay for drawdown every time I request money. It saves me the processing fee," said a 41-year-old woman who runs a garment retail business.

The respondents noted how they could draw only the amount required and did not need to take an additional loan. Furthermore, many highlighted the lower cost of the loan. A 45-year-old woman who owns a retail grocery/general-purpose shop said, "I only take a loan of the amount I want and when I want it. I am not forced to take a loan as per the bank's process."

Availability: Given that cash flow is a challenge for rural women entrepreneurs, the availability of immediate cash on request is a key feature that aided their entrepreneurial operations. A 34-year-old woman who owns a general business store said, "I can pay in advance for my goods and get a substantial discount. It helps my overall profit."

The product enables the easy availability of cash, mediated by only negligible transaction paperwork and bureaucracy. The borrowers do not have to wait for approval cycles or submit document for each drawdown. A 39-year-old woman who owned a food stall said, "I am at peace of mind that a bank loan can be obtained any time I want the money."

Accessibility: The product provides access to a loan from the convenience of home or the marketplace. Through multichannel and doorstep banking, cash is accessible within a reasonable timeframe. According to a 27-year-old woman who owns a savoury foods shop, "I can request a drawdown over the phone, voice, or WhatsApp. The money is transferred to my bank account." A 36-year-old woman who owns a greengrocery said, "The loan officer [field agents] also provides me with a loan in the market and collects my cash. Also, I can request money and use UPI for my payments. I do not have to wait and lose income by traveling to a bank branch/ATM."

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[f] Cost associated with availing loan amount from the sanctioned limit.

Awareness: Field agents provide existing and potential beneficiaries with information on the loan, its functionality, and its benefits. The agents are a continuous source of information and support for the borrowers, building confidence in the product. A 33-year-old snack-stall owner said, "I am clear on the product features, and the dos and don'ts. The loan officer supports me as and when required, in good days and bad days".

Improved Financial Literacy

The rural women entrepreneurs who participated in our study demonstrated high levels of financial literacy and digital knowhow, which are interrelated.

Financial literacy is critical to increase the use of formal financing. All definitions of the term indicate that financial literacy should be understood as a person's competency and ability to manage money.[14] Individuals with higher financial literacy have greater access to formal credit and more disposable income or savings.[15] However, in the past decade, the rapid development of technology and increased mobile penetration has transformed the conventional banking branch infrastructure, enabling financial institutions to go digital and adopt remote banking, thus providing an environment for financial inclusion.[16] In the Indian context, UPI connects all aspects of economic activity and has democratised financial services,[17] thereby facilitating livelihoods and labour force participation.[18]

However, this transformation requires individuals to possess not only financial literacy but also appropriate digital skills. Financial literacy, digital skills, and loan access is critical to economic empowerment. MDMSB conducted financial literacy training modules over 10 working days (five hours per day), for 20-25 students per class. Over a period of five years, MDMSB and Mann Deshi Foundation have trained all bank customers (50,000), and the training is reinforced by field agents. The borrowers said they saw increased profits after completing the trainings. Similar performance metrics were observed in pan-India randomised control trials conducted by a different team of researchers.[19]

The combination of loans and appropriate financial literacy can enable rural women entrepreneurs to select the right product, adding to a net income increase (see Table 5).

Table 5: Returns on Cash Credit Loans vs Informal Credit

Product Type	Cash Credit	Informal Credit
Working Capital	2,500	2,500
Interest per day	0.07%	1.4%
Interest per day Rs	2	35
Daily Income (with all inventory sold)	400	400
Interest as a % of	0.5%	8.7%

Source: Authors' own

Policy Recommendations

Women's economic empowerment involves three interconnected dimensions: resources, agency, and achievements, where the third dimension is a manifestation of the interaction between the first two. Policy interventions must be structured to facilitate agency-building in addition to resource augmentation to address the needs of women rural entrepreneurs.

Resources (Capital) Augmentation: Businesses led by women require different types and amounts of capital at various stages of growth. Policies should prioritise making credit products affordable and accessible, and tailored to their specific needs. Most institutions that provide access to capital for rural women entrepreneurs rely on proven and low-risk products such as JLGs. However, a demand-side perspective is also necessary, with products aligned to the specific needs of rural women entrepreneurs.

- **Regulatory support for risk management regulation:** When calculating the portfolio at risk and non-performing assets for financial institutions, the Reserve Bank of India can consider developing a comprehensive policy that does not shy away from field experimentation of innovative products.

- **Development of social impact bond market:** A framework to issue social impact bonds that can further support the development of innovative products. This will enable the financial institutions to access capital to structure and experiment with innovative products.

- **Financial inclusion product innovation credit guarantee fund:** A portion of the fund from the Credit Guarantee Fund Trust for Micro and Small Enterprises, can be used for product innovation. The objective should be to provide a corpus for agile, tech-savvy microfinance institutions to enable them to develop new products and conduct experimental field trials focused on the needs of women entrepreneurs.

Building Digital Financial Literacy: Financial literacy is a crucial factor in enabling empowerment. It helps individuals make informed financial decisions, leading to overall improvement in well-being. Financial education, including digital literacy, addresses the needs of women from the demand side. In addition to conventional financial literacy, digital financial literacy is of paramount importance. The implications of financial literacy vary depending on a country's development levels. For instance, in high-income countries, financial literacy is crucial for consumer protection, while in emerging markets, it plays a significant role in accessing formal finance.

- **Digital Content Platform – Creating a Playbook:** The documentation of learnings and experiences on various best practices is essential for an exchange of knowledge and information across different contexts. Lessons learned from one country can be applied to benefit others. A playbook, comprising regulatory perspectives, capital market experiences, operational processes, and risk and fraud management tools can be developed through collaboration between policymakers, financial institutions, regulators, development organisations, and academia.

- **Establishment of a Financial Literacy Fund:** As part of corporate social responsibility initiatives, a certain percentage of profits from banks and other financial institutions can be allocated towards financial literacy. This can be utilised to enhance the financial literacy and digital skills of women entrepreneurs. A structured training programme should be implemented in collaboration with capacity-building commissions, MFIs, SHGs, and NGOs.

Conclusion

In 2020, the Ministry of Housing and Urban Affairs launched the PM Street Vendor's AtmaNirbhar Nidhi (PM SVANidhi) to empower street vendors by extending loans for their economic upliftment. Similar examples (innovative MFI products that use digital technologies) are seen across the Global South, such as Amret (Cambodia), Bancamía (Colombia), and FINCA Impact Finance (global).

These examples highlight the importance of the cash credit loan product. Establishing such innovative financial options, especially for rural and low-income populations, requires product development and agency building through structured schemes and non-scheme interventions. In addition to individual governments, the G20 platform can consider addressing the challenge. The G20 countries can establish interest subsidies or risk capital to support experimentation with new products for this segment. This would signal that the G20 recognises gender equality and empowerment as critical for an inclusive and a more integrated society.

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IV.

Investing in the Care Economy to Boost Economic Growth and Gender Equality in G20 Countries

Mitali Nikore

Abstract

GLOBALLY, WOMEN SPEND three times the hours that men do on unpaid care work (UCW), and the value of women's care work comprises a small share of global GDP. There are wide variations in gender gaps in UCW across G20 countries, ranging from 8.4 times in India (the highest) to 1.5 times in Canada. These gender gaps in UCW manifest market failures in the economy: increased time poverty of women; inefficient allocation of women's talent; lack of well-paying jobs in the care sector; and motherhood penalties—ultimately lowering female labour force participation and constraining economic development. This article reviews care policies across G20 countries and finds that leave policies, subsidies for care services, and investment in care infrastructure are the most common forms of government support in the care economy. The article provides policy and programmatic recommendations so that key stakeholders, including government agencies, private sector as well as community-based organisations, can work together in recognising, reducing, and redistributing care work.

Introduction

CARE WORK, BOTH PAID and unpaid, is essential to the future of decent work. It consists of two overlapping activities: direct, personal and relational care activities, such as feeding a baby; and indirect care activities, such as cooking and cleaning.[1] Unpaid care work (UCW), such as nursing a partner who is ill, is care work provided without monetary compensation. Paid care work, meanwhile—such as domestic services provided by domestic workers—is performed by care workers in exchange for some form of remuneration.

Unpaid care work is crucial for households and economies to function, yet remains mostly invisible and unaccounted for in measurements of gross domestic product (GDP) and economic growth. The undervaluation and invisibility of care work, predominantly performed by women, has resulted in a market failure, where skilled and talented individuals are unable to realise their economic potential, leading to a misallocation of resources at the macroeconomic level. The COVID-19 pandemic further exacerbated the gendered burden of UCW on women due to school closures and disruption of domestic support services.[2]

Enhancing investments in the care economy can correct this market failure and unlock a new economic segment within the G20 economies. International deliberations on care, such as the Bali care economy dialogue, have also provided comprehensive recommendations to governments to subsidise care provisions, professionalise care work, and ensure enforcement of care regulations.

Against this backdrop, this article presents a statistical review of time use data to assess gender gaps in UCW across the G20. The paper is divided into four sections. Section 1 introduces the motivation and rationale for the analysis. Section 2 constructs a gender-disaggregated review of UCW across G20. Section 3 explores the four manifestations of market failure in the care economy: time poverty; lack of well-paying care jobs; inefficient allocation of talent; and motherhood penalties. Section 4 explores care economy policies across the G20. The final section offers policy recommendations for key stakeholders across these economies.

Gender-Disaggregated Analysis of Unpaid Care Work Across G20 Countries

Globally, women spend 3.2X[a] more time on UCW than men: 4 hours and 25 minutes per day, against 1 hour and 23 minutes for men.[3] Estimates by the International Labour Organisation (ILO) published in 2018, based on data from 53 countries, suggest that the value of women's UCW represents 6.6 percent of global GDP (approx. US$8 trillion).[4]

There are wide variations in gender gaps across G20 countries, ranging from 8.4X in India to 1.5X in Canada.[5] Both globally and in the G20, India is amongst the countries with the widest gender gaps in UCW—behind China (2.5X) and South Africa (2.3X).[6] This section outlines the gender variations in UCW across the G20 economies, and undertakes a closer examination of Time Use data for India.

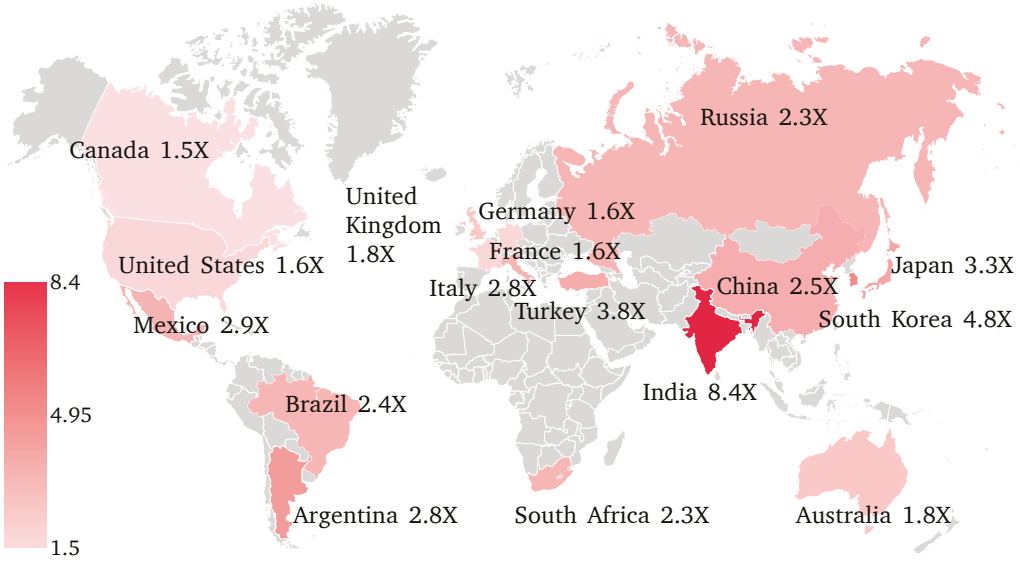
Gender gaps in UCW across G20 countries

The magnitude of the gender gaps in unpaid care provision may be assessed in terms of hours spent on UCW per day. Assessing gender gaps in UCW across G20 (see Figure 1) reveals significant differences across these countries, with higher gender gaps across the emerging economies. For example, amongst the developed countries, the disparity in UCW undertaken by men and women is highest for Japan, at 3.2X. Typically, amongst other developed countries such as the European economies, the disparity is about 1.6X (France) to 1.8X (United Kingdom).

Even in the group of developing countries, India emerges as an outlier in the higher end of disparity, with women spending almost 8.4X the number of hours spent by men on UCW, according to data from the Government of India's Time Use Survey (TUS) from 2019.[7] The next highest gender gap is witnessed in Turkey at 3.8X. Amongst the remaining BRICS economies, gender gaps in UCW hover around 2.3X (Russia) and 2.4X (Brazil).

[a] '3.2X' means that women spend 3.2 times more on unpaid care work, as compared to men.

Figure 1: Gender Gaps in UCW in G20 Countries



Source: ILO Data (2018)

Note: Data for Indonesia and Saudi Arabia and disaggregated data for European Union is not available. Data for Brazil and Russia is from the World Bank and data for India is from the Government of India's Time Use Survey 2019 (TUS 2019).

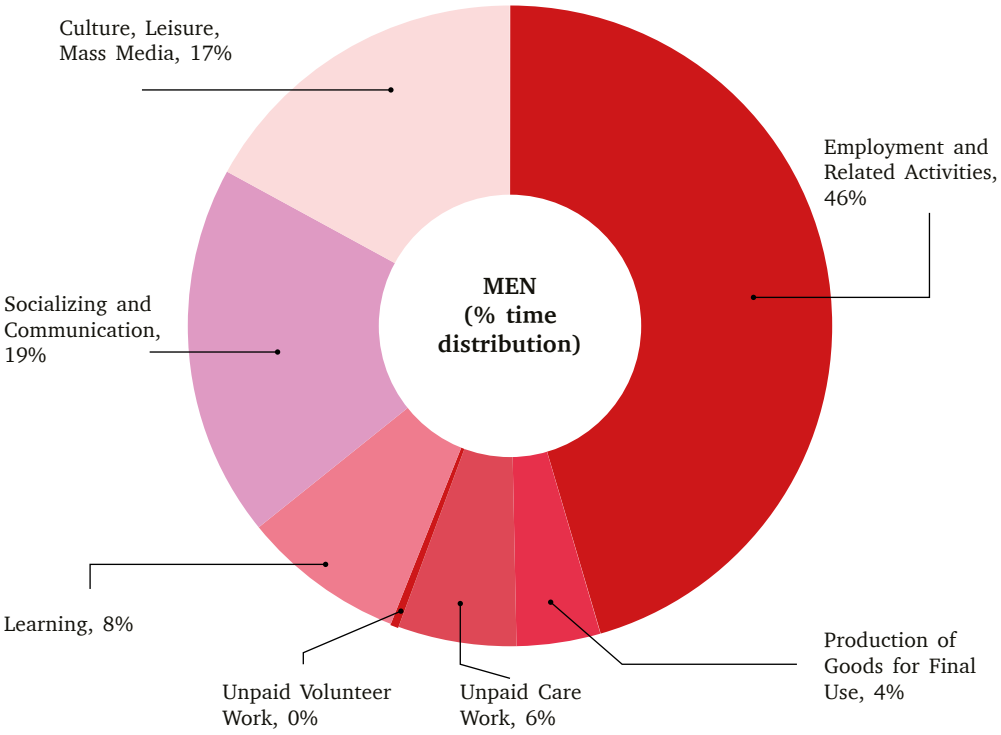
Gender gaps in UCW in India

As per the analysis above, India is a distant outlier in terms of the gender gaps in UCW. India has also experienced consistently falling female labour force participation over the last five decades and continues to have amongst the lowest female labour force participation rates (FLFPRs) globally. This is despite falling fertility rates, narrowing gender gaps in educational outcomes, and rising per capita incomes.[8] This has motivated a deep dive into the nature of gender gaps in UCW based on data from Government of India's Time Use Survey 2019 in this section.

On average, women in India spend 46 percent of their waking hours on UCW, about 5.5 hours per day, vs. 30 minutes by men, i.e. 8.4X the hours spent by men. Moreover, these gender gaps persist even amongst women with higher education and those in paid employment. Across all educational qualifications, women allocate a greater portion of time towards unpaid care work than men, with the gender gaps widening amongst persons with the highest educational levels—i.e., graduates and postgraduates. Women in paid employment take on approximately 6X more UCW than employed men. Married women shoulder a larger share of unpaid domestic work, compared to their unmarried counterparts. Data suggests that childcare is the third biggest consumer of women's time spent in unpaid work in India, after cooking and cleaning.[9]

India's G20 Presidency in 2023 can therefore channel a unique understanding of the gender gaps in UCW and prioritise the care economy agenda in cooperation with the G20 economies.

Figure 2: Waking Hours Spent on Unpaid Work by Men and Women in India (%)



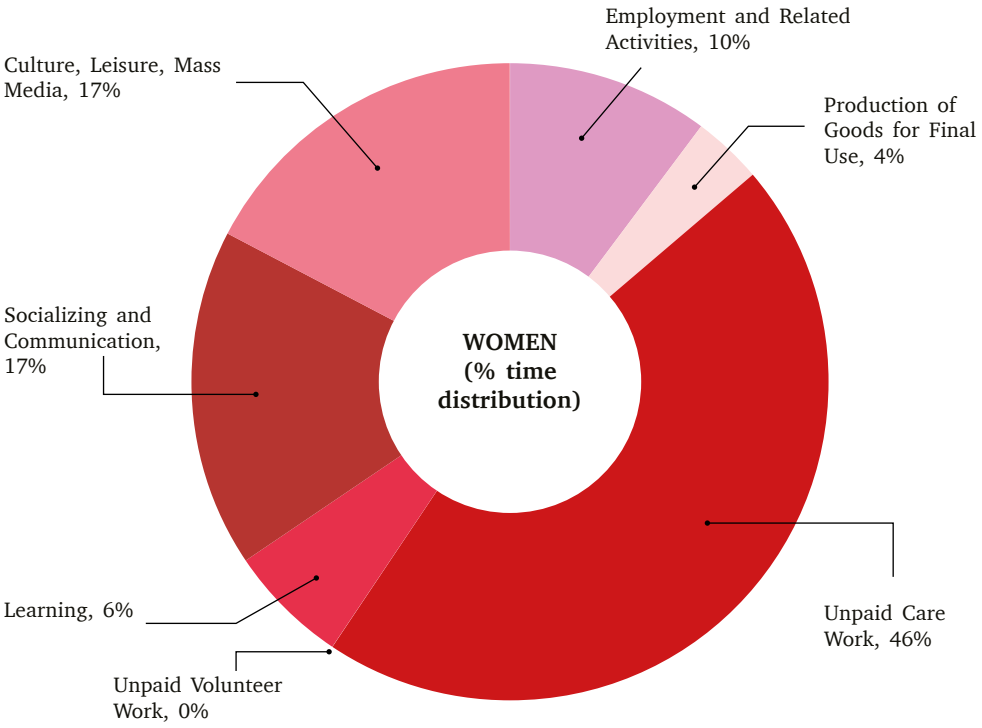


Figure 3: Time Spent on Unpaid Work (by Education) in India

Figure 4: Time Spent on Unpaid Work (by Marital Status) in India

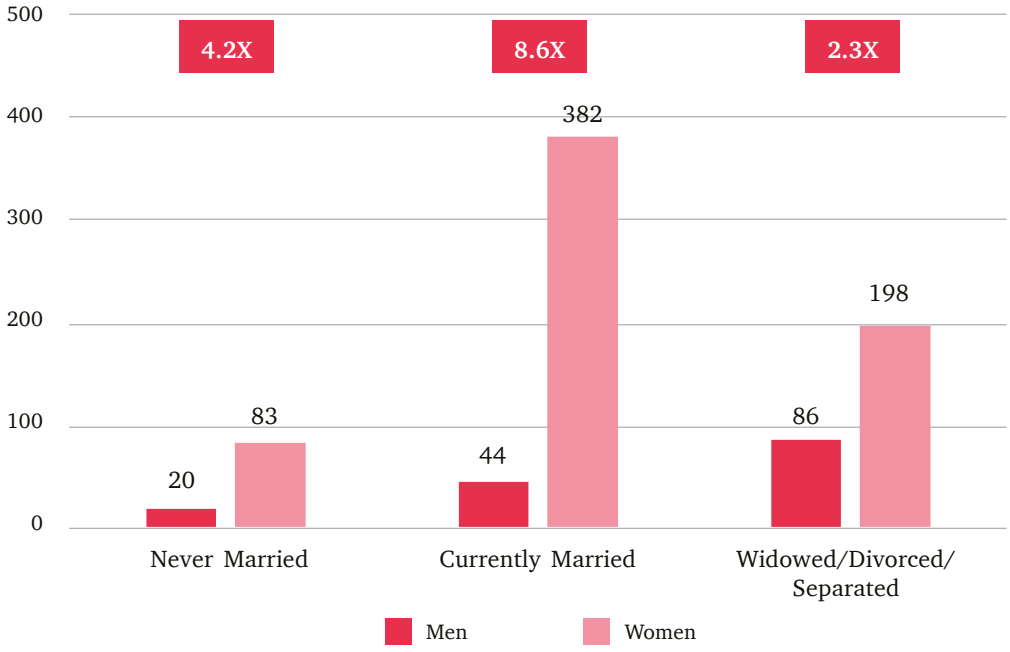
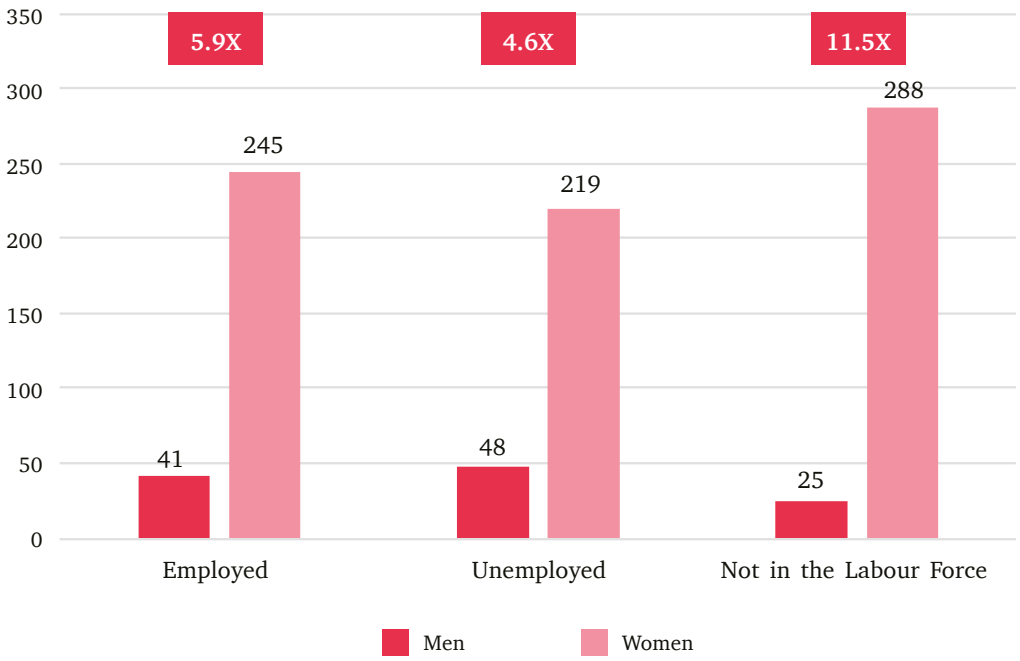


Figure 5: Time Spent on Unpaid Work (by Employment) in India



Source: Author's calculations based on TUS 2019

Labour Market Failures Resulting from Gender Gaps in Unpaid Care Work

Classic microeconomics defines 'market failure' as a situation where conditions prevailing in free markets result in inefficient outcomes. Economists such as Robert Pindyck, Daniel Rubinfeld, and Prem Mehta, have defined 'market failure' as a "situation in which an unregulated competitive market is inefficient because prices fail to provide proper signals to consumers and producers."[10]

In the market of care work, women—the producers—provide care work services without attaching any price or value to their service or accounting for the opportunity cost of their time. Meanwhile, households benefit from this care work, and given that it is available without any cost, the demand is infinite. This, combined with social norms that reinforce—and, indeed romanticise women's role as primary caregivers—results in a market failure where women end up bearing a disproportionate share of UCW.

Moreover, it is difficult to measure the relationship between economic value and wages for care work as they fail to accurately capture the positive benefits for not only the direct purchasers but the broader economy. For example, when a day-care provider babysits children or when a mother spends time with her child, she additionally provides critical support to the early development of children, bringing benefits to their future academic achievement, and lifetime earnings; for children in particularly challenging environments, the gains include nurturing the ability to become productive members of society and stay out of the criminal justice system.[11] Calculations of the monetary value of care work do not consider any of these.

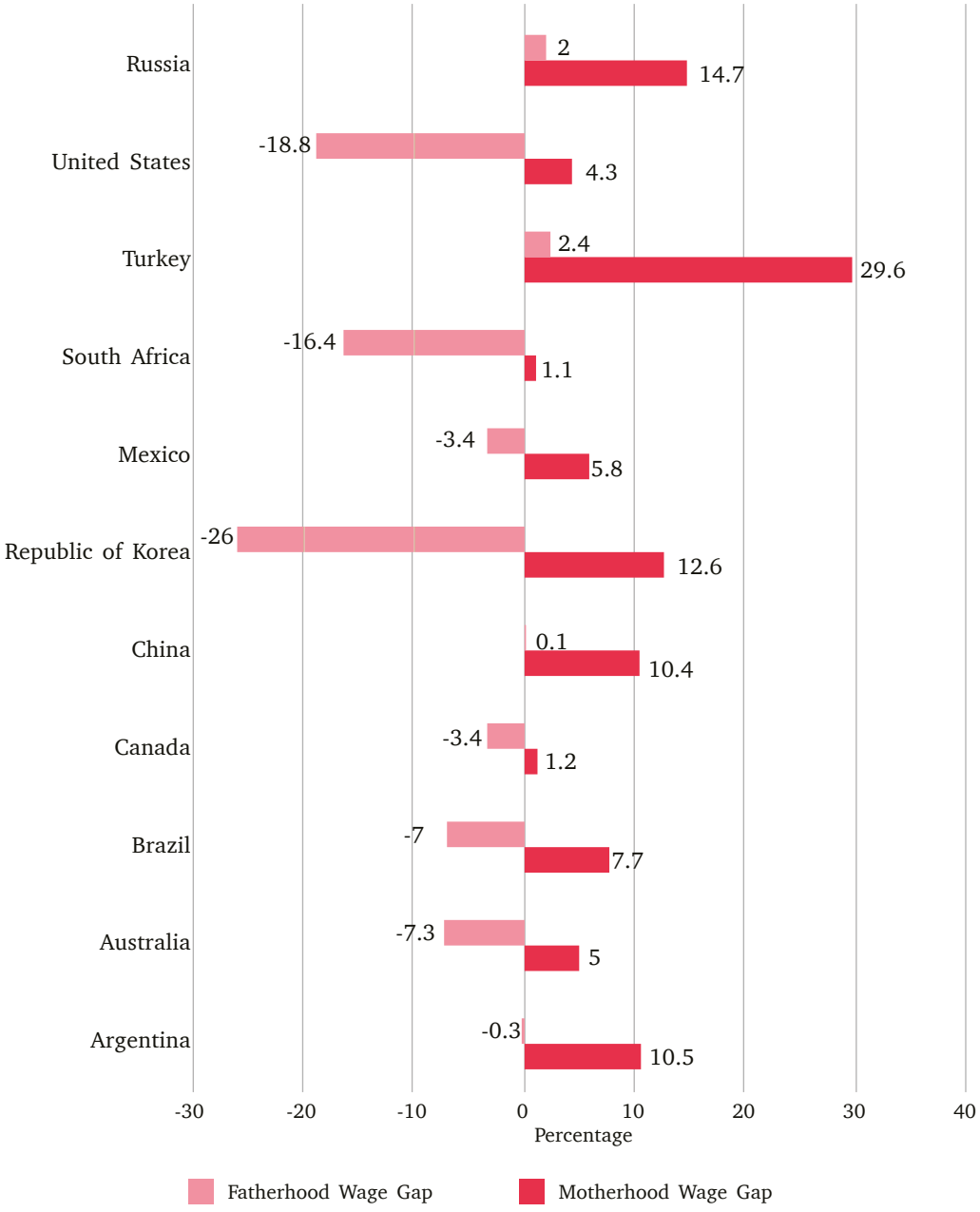
The market failure manifests in four ways:

First, women experience time poverty, which means they have far less time than their male counterparts for paid work, education, upskilling, or leisure. This leads to poor mental and physical health outcomes.

Second, women find their labour force participation options constrained. Cross-country estimates from the Organisation for Economic Co-operation and Development (2014) find that a two-hour increase in unpaid labour commitments correlates with a 10-percentage point decrease in the FLFPR.[12] Women who may be unable to find flexible work or part-time jobs that fit around their care work schedule may drop out of the labour market altogether. This results in sub-optimal economic outcomes, as the economy loses out on skilled, talented and willing workers owing to rigid working arrangements and a lack of care services.

Third, women experience what is known as 'motherhood penalties'. Data from across G20 economies shows that in most economies, mothers tend to earn less than women with no children—this is known as the 'motherhood wage penalty' (see Figure 2). Meanwhile, men with children tend to earn higher than their peers with no children—i.e., the 'fatherhood wage premium'. Women lose working hours and face adverse impacts on their careers, while fathers are offered higher compensation owing to the perception that they are "primary breadwinners".

Figure 6: Motherhood and Fatherhood Gaps in Select G20 Countries



Source: ILO Data 2018[13]

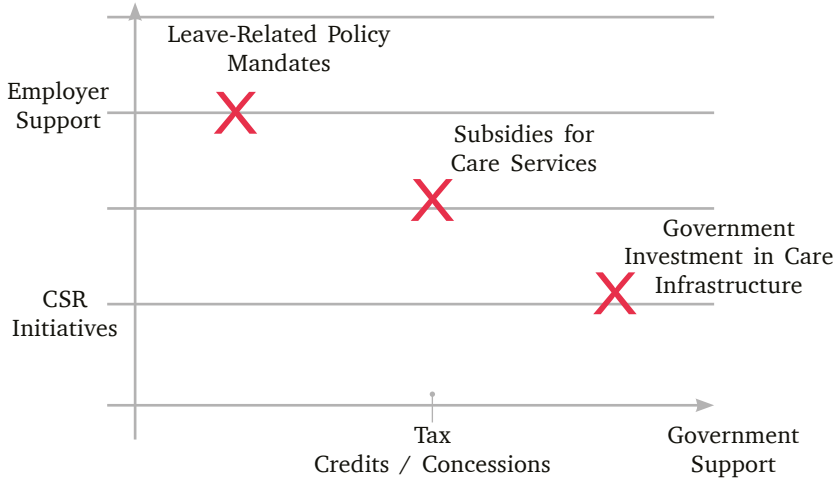
Note: The motherhood gaps in this table are estimated by comparing the hourly wages of non-mothers to the hourly wages of mothers, while the fatherhood gap compares the hourly wages of non-fathers to the hourly wages of fathers. A positive motherhood (or fatherhood) gap means that mothers (or fathers) earn less than non-mothers (or non-fathers).

Finally, care work continues to be undervalued even when performed by service providers outside the household. Even in developed countries, care occupations, like domestic services, are viewed as an extension of unpaid responsibilities. Consequently, care jobs, too, carry with them the burden of lower social status and lack of recognition.

Current G20 Policies

Given these manifestations of market failure, this article reviews selected care policies and practices across the G20 that aim to build a gender-responsive care ecosystem. The comprehensive analysis of care policies across 19 countries[b] shows that they can be classified into three types: leave policies; subsidies for care services; and government investment in care infrastructure.

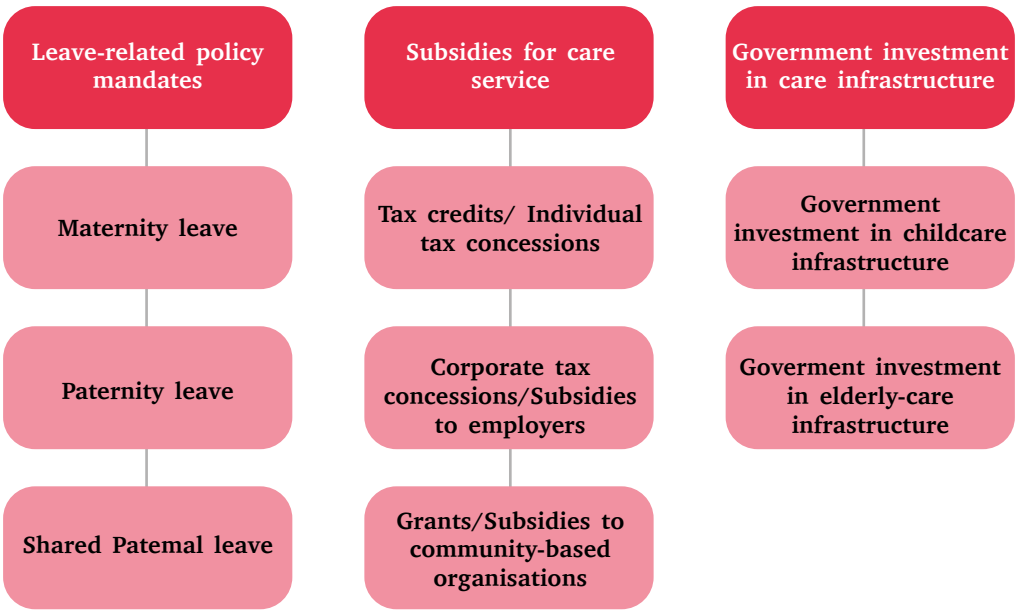
Figure 7: Care Economy Policies Across G20 Countries



Source: Author's analysis

Explanatory Note: This figure shows government vs. private contribution in each of the three types of care economy interventions.

[b] This analysis does not include members of the European Union who are not individually part of G20.



Source: Author's analysis

Note: This figure shows the sub-categories of each of the three types of care economy interventions.

Leave Policies

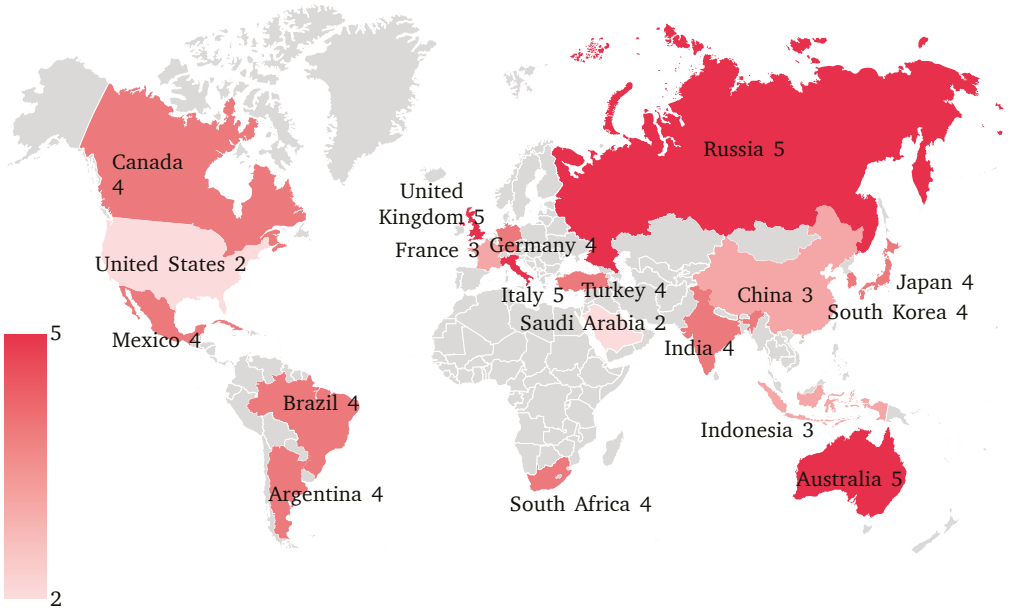
Leave-related policies should offer both men and women a continuum of support throughout their children's childhood and teenage years, as well as later in life when additional care responsibilities emerge for older adults. The following sub-sections reveal crucial policy insights on how G20 countries are converging in promoting better family leave provisions.

a. Maternity leave

A number of empirical studies show that adequate maternity leave can lead to lower infant mortality rates, health benefits for the mother, higher FLFPR, and increased breastfeeding rates.[14]

All G20 countries have legal provisions mandating at least 10 weeks of paid maternity leave, barring the United States (US).[15] In most G20 countries, 10-20 weeks of maternity leave are legally guaranteed. Notably, the United Kingdom (UK) mandates 52 weeks of statutory maternity leave, but pay entitlements are provided only for 39 weeks.[16]

Figure 8: Maternity Leave Policies Across G20



Source: Author's calculations

Explanatory Note: In this analysis of maternity leaves across the G20 countries, three categories have been defined: (i) if the country has a legal provision for providing maternity leave; (ii) if the government funds the maternity leave provision; and (iii) if the country provides a longer duration of maternity leave. Based on this analysis, a composite score has been assigned to the G20 countries.

In more than 10 countries, the government provides some level of financial support for the provision of maternity leave—yet, wide variations remain. On one hand, in Argentina, the government fully funds the maternity leave cash benefits and provides 13 weeks of maternity leave entitlement, while in India, the government provides no financial support for maternity leave, with the employer having to bear the full cost of the six months of legally stipulated leave.[17]

b. Paternity leave

Studies suggest that paternity leave mandates lead to higher female employment in private firms.[18] Most G20 countries (except India,[c] the US, China,[d] Canada,[e] Russia, and Japan) have statutory entitlements for paid paternity leave. The

[c] In India, only government officials have the right to 15 days of paternity leave.

[d] Statutory entitlement nationally does not exist; however, some provinces choose to give 10-30 days of paternity leave.

[e] There is no statutory paternity leave in Canada, except in Québec. Paternity leave in Canada is a part of the Parental leave, which means that both parents can use this time off together, but at least 5 weeks are reserved for "daddy days".

benefits are either funded by the employer or through employer and employee contributions. In countries like Australia, Germany, Italy, France,[f] UK,[g] and South Africa, the benefits are provided by the social security system. Typically, paternity leave varies between two to 30 days in these countries.

c. Shared Parental leave

Across the G20, nine countries currently have legal provisions that offer parental leave and monetary support to the primary caregiver, regardless of their gender. In countries that mandate this legislation—i.e., Australia, Canada, Germany, Italy, France, Japan, UK, Russia, and South Korea—governments partially support the benefits.

Additionally, the duration of parental leave differs extensively across these countries. For instance, shared parental leave ranges from 39 weeks in Italy to 312 weeks in France and Germany. Provisions for extending shared leave are also instituted in several European Union countries like Finland (160 days) and Sweden (480 days).[19,20]

Subsidies for Care Services

Subsidies for availing care services are critical to support working mothers and families, particularly for childcare and care of older adults.

Typically, amongst all G20 economies (except Indonesia and Saudi Arabia), these subsidies are in the form of individual tax credits to parents. For example, parents in the US are eligible for various tax credits: the maximum child tax credit per qualifying child is US$2,000 for children under five, and US$3,000 for children six to 17.[21]

[f] Partially funded through social security

[g] Partially funded through social security

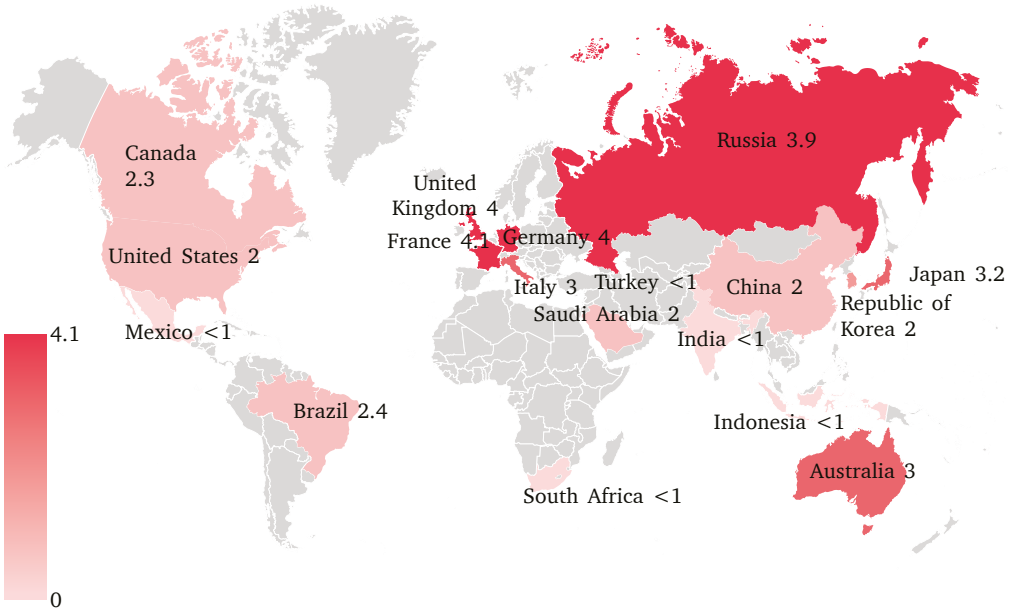
Tax concessions to encourage businesses to offer childcare benefits to their employees are also common in 12 countries. For instance, the US government allows businesses to receive a valuable tax credit of 25 percent of related childcare expenses and 10 percent of their resource and referral expenses, up to a total of US$150,000.[22] In Brazil, employers have the option to offer an additional maternity leave of two months and deduct the amount paid during this period from their corporate income tax.[23]

Lastly, nearly all G20 economies (except Brazil and Indonesia) leverage public-private partnerships (PPPs) and provide government subsidies and grants to community-based organisations (CBOs) for providing care services and running care facilities. For instance, under the National Aboriginal and Torres Strait Islander Flexible Aged Care Program, the Australian government funds organisations that provide care for older people.[24] Notably, the Canadian government also funds community-based projects and organisations that empower senior citizens and contribute to improving their health and well-being.[25]

Government Investment in Care Infrastructure

According to data from the ILO published in 2018, G20 countries were spending between 1 percent to 4.1 percent on selected care policies (see Figure 4). Typically, amongst the developed countries, investment as a percentage of GDP ranges between 2 percent to 4.1 percent, and for developing countries, from less than 1 percent to 3.9 percent.

Figure 9: Care Expenditure as % of GDP Across G20 Countries



Source: ILO Data 2018[26]

Note: Expenditure includes pre-primary education; long-term care services and benefits; and maternity, disability, sickness, and employment injury benefits.

In recent years, G20 economies have been actively investing in care infrastructure to build a resilient care ecosystem. For example, under the American Jobs Plan, the US government will allocate US$400 billion towards constructing affordable home or community-based facilities for elderly care and US$25 billion to the Childcare Growth and Innovation Fund to upgrade government childcare centres.[27] For its part, the Canadian government is providing a one-time grant of US$44 million to provide access to high-quality, affordable and inclusive early learning and childcare across the centres in the Saskatchewan province.[28]

Recommendations

Drawing insights from policy ideas emerging from international efforts to equitably distribute care work, this article offers a set of policy recommendations for key stakeholders in the G20 economies, including the public and private sectors as well as CBOs.

1. Investment in the care economy by the public sector

Investments in care economy infrastructure and services can create up to nearly 300 million jobs by 2035, of which 78 percent are expected to go to women. Moreover, each dollar spent on the care sector has the potential to generate 2 to 3 times more jobs than if the same dollar was to be spent on other sectors such as physical infrastructure and construction.[30]

a. Investment in child and elderly care infrastructure

In the next two decades, most G20 economies are likely to experience increasingly ageing populations demanding robust investments in care infrastructure in the rural regions. In addition, certain G20 economies such as India will experience a dual care burden of a large ageing population and growing number of children. Thus, G20 countries can devise medium- and long-term plans to increase public investment in building childcare and elderly centres in line with demographic projections that are easily accessible and affordable.

b. Formalisation of care work structures

Care work and domestic work are characterised by a high degree of informality, especially among women workers.[31] There is a need to devise systematic institutional frameworks with defined job roles and payment bands commensurate with skills, duty hours, and experience for care workers across the G20 countries.

Additionally, G20 governments, particularly in developing economies, can devise policies and regulatory frameworks to formalise working conditions for care and domestic workers, according worker rights such as minimum wages and social security.

c. Training and upskilling of care workers

Skilling programs for care economy workers can be devised, and work experience and skills training-based certifications can be introduced to institute seniority levels and specialisations amongst care workers.

d. Collecting gender-disaggregated data

Across the G20 countries, regular gender-disaggregated Time Use Surveys are essential, which include wide national and local coverage, more descriptive questions, and improvements in methodology to capture different types of UCW activities.

2. Private sector and employer support for working women

Enterprises face the challenge of designing diversity, equity, and inclusion (DEI) policies that enable women to realise their potential at the workplace while simultaneously acknowledging yet challenging social norms around UCW. Private sector firms can consider the following interventions to support employee families:

a. Support for care services

Employers can provide working parents with access to care services and infrastructure within the vicinity of the workplace. In addition to creche facilities, employers can also provide a range of in-situ services such as breastfeeding/ lactation rooms, resting rooms for use during menstruation, and parking facilities for pregnant women. Companies may also support employees by subsidising/ providing services for childcare, elder care, or long-term care support through either corporate partnerships or financial incentives.

b. Care work leave and flexible work policies

Employers can consider introducing gender-neutral, job-protected, paid or unpaid care work leaves. These may be short-term or medium-duration / sabbatical-style leaves that facilitate return to the same employer for career growth. Governments and employers may also consider co-financing carer leaves for employees below a certain income threshold (nationally defined).

Additionally, flexible work arrangements, including reduced working hours and telecommuting options can be introduced to nurture a more inclusive and accommodative culture towards the care work burden on women and encourage men to share the responsibility of domestic work.

3. Upscaling CBO-led care solutions

CBOs can emerge as essential care service providers, particularly in the informal sector. CBOs offer care services that are not only affordable, but their deep connections within local communities allow them to gain trust and influence attitudes by facilitating conversations around issues of gender equality.

Governments across the G20 can support CBOs that are providing innovative care solutions by leveraging PPPs and other innovative financing arrangements. Private enterprises can also provide them financing as part of their corporate social responsibility budgets to help scale up their services.

Conclusion

Globally, women spend 3X more time than men on UCW—with large differences across the G20 countries. This disproportionate burden of responsibilities results in a market that is constraining women's participation in labour markets. Correcting these market failures and recognising, reducing, and redistributing women's UCW requires a coordinated effort from key stakeholders, with public-led investments in care infrastructure and services complemented by soft interventions from private-sector employers and CBOs across G20.

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V.

The Collective Path to Women's Economic Empowerment

Renana Jhabvala and Nandini Dey

Abstract

THIS ESSAY FOCUSES on collectivised leadership as a pathway to women's economic empowerment, drawing from the rich history of the Self-Employed Women's Association (SEWA) in India. It uses specific cases to illustrate the ways in which women leaders in the informal economy have struggled for opportunities and the space to be seen and heard, and to contribute to development agendas. Given the focus on women-led development in G20 deliberations in 2023, it is essential that the issues and experiences of grassroots women workers be brought to the forefront. This essay looks at different forms of collectivisation as pathways to empowerment, emphasising the role of grassroots women leaders in bringing about sustainable and long-lasting change. It presents recommendations towards creating an enabling environment for women's collectivised leadership and argues that the same principles of collectivisation need to be applied internationally to form strong alliances around issues of women-led empowerment.

Introduction

"Empowerment is not a static condition but an active one that requires action and movement."

- Ela Bhatt, SEWA Founder

ONE OF THE MAIN priorities of India's G20 presidency is women-led development, with an emphasis on grassroots women leading the way in creating a development agenda where women are drivers of socioeconomic growth. Making this a reality will require a simultaneous shift in attitudes and perceptions, together with building corresponding systems and opportunities to enable women to take and exercise leadership.

The UN Secretary-General's High-Level Panel on Women's Economic Empowerment was instituted in 2016 to follow through on the 2030 Agenda for Sustainable Development.[1] The Self-Employed Women's Association (SEWA) of India played a critical role on the panel, providing some of the most essential empirical evidence that helped shape evolving theories and definitions on informal women's struggles and developmental strategies. The committee report revealed that increasing grassroots women's participation and leadership is key to both women's economic empowerment and the formulation of an international agenda for inclusive growth and development. SEWA has found that collectivising women allows women at the grassroots to find their voice, develop agency, and become visible actors at the social, political, and economic levels who lead and enact change in their communities, creating a cascading effect up the socio-economic pyramid.

This essay discusses pathways to women's leadership from the perspectives of female informal workers through empirical evidence collected during SEWA's journey. It draws on a meta-analysis of work written on and by SEWA, including evaluations of activities, literature on women's development, historical documentation of the movement by SEWA leaders and academics, insights from oral histories, and interviews to fill gaps in the narrative. This work is situated within the larger context of grassroots women's leadership and their economic empowerment and seeks to contribute to ongoing discussions on ways India can strengthen and prioritise its vision for women-led development.

Collectivising Grassroots Women, Creating Movement Leaders

SEWA was founded 50 years ago in Ahmedabad in the state of Gujarat, to improve the conditions of women workers in the informal economy. The first successful battle that SEWA members undertook was to negotiate with cloth traders for higher rates for head loaders. This success drew many other workers to SEWA, and a trade union was registered with 200 women head loaders, street vendors, and home-based garment workers. Over the last 50 years, the SEWA union has grown to 2.5 million members in 18 Indian states.

Collectivisation enables the emergence of grassroots leadership. At the core of the movement are the women leaders (or *aagewans*, a portmanteau of the phrase *"aage aane waali ben,"* or the woman who comes forward) who are identified and nominated from the collectives to take the movement of women informal workers forward. SEWA's model of organising and collectivising, whether around policy change or economic development, relies on aagewans. Inspired by Mahatma Gandhi and led by founder Ela Bhatt, SEWA invests power in local communities. A leader among their peers, aagewans share the same lived experiences as the women they lead.[2]

An early instance of women leaders pushing forward innovative developmental agendas was when SEWA confronted the issue of poor women's access to affordable credit. At a meeting called to discuss the issue, several hundred women stood up one after another and complained that banks would not give them loans. Finally, an aagewan said, "Why can't we have our own bank?" Thinking of the minimum share capital of INR 1 that would be required, Bhatt responded, "How will we have a bank, we are so poor?" The vendor responded, "We are poor, but we are so many!"[3] Thus, in July 1974, the Mahila SEWA Sahakari Bank (SEWA Bank) was registered—the first of its kind and a vanguard in the movement for accessible microfinance.

SEWA's experiences highlighted above, of first forming a trade union and then a bank, emphasises the power of forming collectives and enabling local leadership. Both these institutions brought previously invisibilised women onto platforms where they were seen and where they could amplify their voices and address their needs for decades to come. Bringing informal women into the mainstream by first organising them and then supporting them to form formal institutions with, for, and by them, became SEWA's strategy over the years.

Collectivisation as a Key to Empowerment

"In my experience, women are the key to building a community. Each woman is not only a worker, but also a provider, a caretaker, an educator, a networker and a vital forger of bonds in a community."

- Ela Bhatt

This experience of collectivising women successfully has been echoed by SEWA's peers such as Pradan[4] and self-help groups (SHGs),[5] all of which show that collectivisation has a significant and measurable impact on their sustained economic and political empowerment.[6] The solidarity of collectives, both civic and economic, impacts a woman's agency, and sense of autonomy and self-worth. SEWA's collectives have empowered grassroots women to bring their communities forward with them—be these collectives for economic advancement, social protection, or labour rights.

A study carried out in Gujarat in the early 1990s to assess the impact of SEWA's training, exposure, and experience on local leaders found that in comparison to general members, aagewans reported feeling more empowered.[7] For example, 47 percent of general members reported feeling more courageous to speak out because of an association with SEWA, as compared to 85 percent of aagewans. Seventy-three percent of aagewans mentioned having dealt with government officials as against 27 percent of general members. As the movement expanded to more states, the training modules and pedagogical tools used in Gujarat were adapted and further developed. In 2021, an assessment of the training programme[8] was carried out with select aagewans in four states. It was found that the percentage of aagewans who were aware of specific needs and characteristics of unorganised sector workers increased by 44 percent after the training. In Punjab, for instance, the percentage of aagewans having participated in and organised a public meeting increased from 48 percent to 78 percent. In New Delhi, only 31 percent of aagewans had interacted with public officials before the training—this increased to 74 percent after SEWA's training.

This approach has also been well-documented to show efficacy and success in improving development outcomes for communities, overall. For instance, an ongoing evaluation of a SEWA initiative where aagewans identify and promote micro-entrepreneurship[9] has yielded quick results in the form of a marked increase

in the percentage of beneficiaries engaged in economic activities (from 68 percent to 72 percent) and entrepreneurial activities (from 48 percent to 53 percent) over a one-year period. The same report shows that the average monthly income of beneficiaries of the programme is 17.5-percent higher than respondents who have had no exposure to the programme. SEWA also emphasises financial inclusion through capacity building in financial literacy and improving poor women's access to credit. The Gujarat Social Income and Insecurity Survey[10] conducted in 2007-08 analysed the data of 1,400 respondents from both rural and urban Gujarat. The survey found that while only 25 percent of non-SEWA families put some savings in financial institutions, more than 60 percent of SEWA members, including the poorest families, did so.

Dealing with informal labour markets requires workers to negotiate with employers and contractors. Collectivised SEWA members tend to negotiate better rates, more notice period, better working conditions, and more work. Non-SEWA members are more likely to be dismissed with less than a week's notice—67 percent as compared to 53 percent of SEWA members. On the other hand, SEWA members are more likely to receive a notice period of 20 days or more—36 percent of SEWA members compared to 24 percent of non-SEWA members. Perhaps most important is that collectives tend to increase women's self-esteem and confidence and generate an energy and enthusiasm that drives society forward. A 2023 report found an increase in confidence levels among beneficiaries when negotiating with suppliers (by 16 percent), bank officials (by 12 percent), and with government officials (by 10 percent) over the course of a year.

Aagewans drive every intervention and, therefore, also take on specialised roles. Some become union leaders, others anchor development initiatives; and still others become entrepreneurial agents in the community, linking women with SEWA cooperative enterprises and self-employed women with credit, markets, livelihood skills training, and opportunities.

BOX 1: Aagewans Innovating

Geetaben

Geetaben became an aagewan when the Sunday bazaar, where she sat on the pavement selling old clothes in Qutab Road, New Delhi, was taken down by the police. She organised and led the women vendors in a protest organised by SEWA, and was the main applicant later in an appeal to the municipality. To equip herself, she attended further leadership trainings organised by SEWA. While the case was ongoing, she used her experience to become an SHG leader and, subsequently, the president of a savings and credit cooperative that provided women vendors with loans for their businesses.

"I spent a whole year going to the cooperative department, as the officers did not believe that women like me could run a cooperative. But I finally convinced them, and today, they say that I should help to form more women's cooperatives!"

Nishaben

Nishaben is an *udyami sakhi,* a young leader who learned to facilitate digital engagement and capacity building for entrepreneurs in the community. She was identified as a part of an apprenticeship programme and now works with an entrepreneurial endeavour called Atithi in rural Uttarakhand. Through this endeavour, SEWA members have opened their homes as homestays to earn additional income. Nishaben acts as intermediary between guests and the local homestay hosts, managing bookings and payments online, supporting women in equipping their homes to meet market demands, as well as creating audio-visual content to promote the business over social media platforms.

Women Leaders Organising for Labour Rights

As a trade union, SEWA has had many achievements at the policy level and in terms of realising actual benefits for its members. For instance, the SEWA union was instrumental in drafting and lobbying legislations such as the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.[12] Women-led protests and mobilisation, and, simultaneously, filing cases in the courts, resulted in the union ensuring spaces for vendors in cities such as Ahmedabad, New Delhi, Patna, and Indore.

In the states where it operates, SEWA has organised around the recognition and rights of women in different informal economy trades. In Bihar, for example, SEWA has been working with women farmers to help them take themselves seriously as farmers, and to then be recognised as farmers by their families, communities, the market, and the state. As women tend to not own the family agricultural land despite being the primary workers, women farmers and their contributions are invisibilised. As a part of the SEWA movement, local women farmers facilitated the registration of more than 4,000 of their fellow women farmers in a government database, resulting in visibility and official recognition of their work. Aagewans would mobilise women farmers at night, as a crowded government portal, weak internet electricity, and fluctuating electric supplies made this impossible during the day. These women, now recognised as farmers, are able to access government loans and schemes and improve their productivity and farming practices.

In Madhya Pradesh, in the early 2000s, SEWA organisers realised that large numbers of *tendu* leaf pickers, who would migrate to urban areas during lean seasons, were not getting paid on construction sites, with the payment for their work going to their male family members instead. SEWA aagewans mobilised women to fight for the right of women construction workers to be recognised as eligible for registration under the Building and Other Construction Workers Act. Between 2010 and 2011, SEWA, through camps held together with the state, registered approximately 1.5 lakh workers.[14]

BOX 2: Leaders Pushing for Legal Change

Nearly two percent of India's urban population are street vendors, and yet most of them are illegal as they do not have the required licences issued by local authorities. In 1983, SEWA leaders went to the Supreme Court on behalf of 327 women vendors of Manek Chowk in Ahmedabad and argued that they had a right to life and livelihood. This effort succeeded, and the municipality was ordered to give the vendors a place to sell their wares. Through continuous mobilising, SEWA has ensured that over 100,000 vendors have space. SEWA has had to continually deal with negative attitudes towards women street vendors, especially from their male counterparts who subject them to sexual harassment and deny them spaces to sit and vend. One of SEWA's demands to the government, yet unfulfilled, is that all street markets should have separate women's sections.

Grassroots Women Leading Cooperative Enterprises

Mobilisation around issues of struggle is one way in which SEWA members have exercised their power and have given birth to local leadership. Another form of collectivising is by bringing women together to raise their status in the market. SEWA's experience has shown that the formation and institutionalisation of women's economic collectives have a significant and measurable impact on their sustained economic empowerment. As with SHGs, women in SEWA are also mobilised and organised into collectives as a first step towards building the enterprise. Unlike both private social enterprises and those promoted by the government, the boards and beneficiaries of SEWA's cooperative enterprises are constituted of women from the informal economy.

SEWA has helped set up over 150[18] cooperative enterprises in the last 50 years, where women have jointly invested in, owned, and run entrepreneurial ventures. These women are trained in enterprise-specific leadership (how to handle accounting, finances, marketing, and business development) and go on to hire and supervise professional management teams to run their enterprise. Under their mandate, SEWA's cooperative enterprises work to accelerate both community-based and community-led innovations. Even though the survival rate of start-ups in India is less than 10 percent,[19] more than 60 percent of SEWA women-led cooperative enterprises have survived and continue to provide work to women and their shareholders.[20] In just one year,[21] in the 1990s, SEWA cooperatives raised cash income of over INR 2 crore for approximately 17,000 women. The number of women benefiting from the cooperatives, both as employees and shareholders, has progressively increased: over 20 percent of SEWA's membership is currently affiliated with a cooperative enterprise.

BOX 3: Women's Cooperative Enterprises

RUDI: The 100-mile principle

While working in rural Gujarat, SEWA members noticed that their households tended not to grow their own food but to buy from shops at higher prices. Their own produce was being sold at much lower prices to middlemen because of the distance to wholesale markets. Seeing this, Ela Bhatt, the founder of SEWA, formulated a '100 mile' principle, linking consumers with producers within a 100-mile radius to enable local development. To put this principle in action, SEWA women mobilised and the RUDI Multi Trading Company Limited was established in 2007. RUDI buys food and spices from local farmers and cleans, processes, and packages it locally. Reaching 25,000 small and marginal farmers, RUDI offers prices up to 20 percent higher than the market. Via local saleswomen (RUDIbens), over 100,000 consumer households have been reached, creating employment for 6,700 women.

RUAAB: A Home-based Workers' Collective

Many women work from their homes as the last link in a supply chain and are paid at per-piece rates. Despite these products being made for international brands, they are exploited by contractors and paid well below minimum wage. Ruaab,[22] a producer (owned) company of garment workers and weavers, was set up to ensure fair rates and to establish a fair and transparent value chain for home-based workers. A small business so far, Ruaab can provide employment to over 200 women with annual revenue of INR 1.43 crore. To fit the needs of its employees, Ruaab has established local centres where the women can attend training and can take work back to their homes. The producers are connected to SEWA's microfinance cooperative, so that they not only focused on earning an income, but on growing their savings and making investments.

Visibility, Voice, and Viability: Empowering Women Across Borders

"Voice allows a woman to encourage and participate in the world around her, to bring about change rather than be its victim."

- Ela Bhatt

SEWA's international achievements have shown that the basic principles that have made SEWA successful can be implemented in the G20 (and other developing) economies. Vulnerable women begin to feel empowered when they come together and support each other. This not only strengthens their resolve, but it also results in greater visibility and a collective voice with which to raise their issues.

As this article has shown, SEWA has found that through collective action, grassroots leaders can effect improvements in the lives of informal women workers. In sharing its experience of organising informal women workers in varied international forums, SEWA has found common ground with women worker-led organisations across countries of the Global South. In 1997, SEWA helped establish WIEGO,[23] a global action-research-policy network to promote the cause of informal women workers. In 2002, alongside trade unions from Africa, Asia, and Latin America, SEWA formed StreetNet International.[24] Nearly two decades later, in 2021, HomeNet International[25] was constituted on the same principle, comprising 36 home-based worker organisations across 20 countries. At the International Labour Conference in 2009, SEWA as a part of the International Domestic Workers Network[26] formed to lobby an International Labour Organization (ILO) convention to protect the rights of domestic workers; in 2011, the ILO Convention C189 on Decent Work for Domestic Workers was passed.

SEWA's experience of negotiating market access through forming women's cooperative enterprises has also transcended borders. For example, SEWA has partnered with the SAARC Development Fund to build the SAARC Business Associations of Home-based Workers (SABAH) in all seven member countries.[a]

[a] The Afghanistan association was shut down, and the ones in Bangladesh and the Maldives were taken over by governments and remain inactive.

Similarly, the Ministry of External Affairs has supported SEWA's work to explore trade linkages with five African nations—South Africa, Ethiopia, Ghana, Senegal, and Tanzania—to help strengthen their women's cooperatives.[27]

Recommendations

There are many successful models, both governmental and non-governmental, of how the act of coming together results in economic empowerment for women. Take for instance the BRAC[28] model in Bangladesh and the Sarvodaya movement[29] in Sri Lanka. G20 member countries can learn from these successes and support efforts to build and strengthen collectives. They can also ensure an enabling environment through policy and institutional landscapes to allow for collectives to flourish. A commitment to women's empowerment through collectives will need to be backed by a joint financial commitment and an attitudinal shift.

The following are specific initiatives that can be considered:

- **Exposure and peer learning programmes:** Perhaps the most powerful way of convincing a group of women to collectivise is to physically bring together women informal workers from different countries to showcase successful models. Less effective but more economical is to expose women to successful models through films and videos, as well as continuous documentation on how to form successful enterprises and virtual dissemination.
- **Identification and training programmes of women grassroots leaders:** SEWA and many other organisations have modules based on experience on how to identify and train grassroots leaders. These can be translated into vernacular languages and widely shared.
- **Platforms for dialogue and mentoring:** Initially, local leaders and their enterprises require continuous mentorship. This can be done through virtual platforms where challenges can be discussed, and issues responded to in a systematic way.

- **Enabling policies and reducing complex regulations:** It is important for governments to realise the importance of women's cooperative enterprises and to work towards simplifying the procedures to formalise such entities. In India, for example, it takes almost a year to register a cooperative, whereas a simple procedure of registration, such as those for companies that takes less than two weeks, can be adopted.
- **Special financial provisioning for women-run cooperative enterprises:** Countries need to proactively identify existing gaps in access to institutional finance, especially for women- run enterprises. A special fund should be created for use by women's micro and cooperative enterprises, allowing them to overcome the widespread financial hurdles in starting and scaling small enterprises.

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VI.

Policy Perspectives in Bridging Gender Disparity in STEM

P. Sivakumar and Niyathi R. Krishna

Abstract

INDIA HAS AN IMPRESSIVE number of women enrolled in STEM (science, technology, engineering, and mathematics) courses, who are gaining greater visibility in academic publications and faring better than even some countries in the Global North. These gains, however, are yet to translate to women's proportional representation in the STEM workforce and in design and policy implementation, and women are missing in top research and leadership positions. This disparity indicates deeply entrenched gender stereotypes and discrimination in what has been a largely masculine academic terrain. The biases percolate down to artificial intelligence (AI) systems that embody systemic and societal barriers. This essay discusses the prevalent gender bias against women and girls in STEM; the invisible gendered patterns that shape classroom culture laboratories and workplaces; and the prospects of innovation and research to encourage alternative, egalitarian narratives of women in leadership positions in STEM. Contextualised on an intersectional gender mainstreaming approach by utilising secondary data, the article proposes implementable policy recommendations for quality learning opportunities, labour market equity, and leadership positions for women in STEM in India.

Introduction

THE STEM DISCIPLINES ARE well-respected,[1] highly paid,[2] and provide many employment opportunities.[3] India has one of the highest rates of women's enrolment in STEM at the tertiary level worldwide (43 percent share), but only 14 percent of these women pursue a career in research and academic institutions in the country.[4] While there is no dearth of female teachers in STEM in schools, higher educational institutions, especially institutions of national importance in the country, are populated by men. For instance, the IIT-Mumbai has only 17 percent of women professors, while IIT-Chennai has about 12 percent. None of the IITs or higher-ranking research institutions have had a female director in history.[5] Women also occupy a meagre 3 percent of top C-suite level positions in the STEM industry in India.[6]

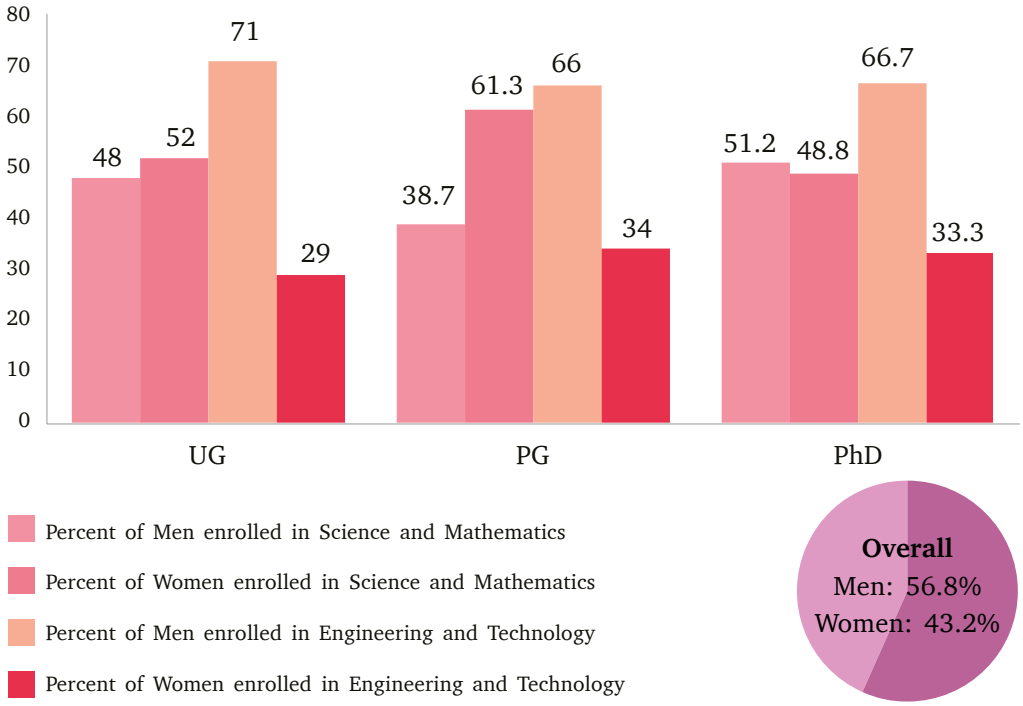
This gender disparity is not a result of lack of ability, interest, or effort, but of inherent discriminations and structural barriers that systematically exclude women's narratives from the STEM discourse. Existing literature highlights that the leaky pipeline[a] and glass ceiling in STEM are prevalent worldwide.[7] Notably, there exists a double bind (disparity within the disparity) within the leak,[8] and the lack of diversity, inclusion, and flexibility in the STEM fields are detrimental to the scope and sustainability of the future of such work.[9] The female labour force participation rate in India and women's marital status have seen an inverse trend, indicating that the participation of married women is lower than the participation of men in urban areas.[10]

Data underlines the feminisation of the humanities and social sciences disciplines,[11] and of certain STEM subjects.[12] However, India exhibits certain unique patterns in science and mathematics, where women outnumber men at the undergraduate and postgraduate levels, although their share in engineering and technology are lower (see Figure 1). There is a significant gender gap in enrolment in government versus private institutions, and in prestigious institutions and institutions of national importance across the country. The gaps are also wide among faculty members, scientists, department heads, deans, and directors in these institutes.

[a] The term 'leaky pipeline' denotes the systematic reduction in the number of women in STEM education, and in entry and retention in employment and leadership positions.

Further, women belonging to marginalised communities are less represented in these institutions, and the 'multiple bind'[b] in the context of India often results in their withdrawal or termination.[13]

Figure 1: Enrolment of Men and Women in STEM Disciplines in India (2020-21, in %)



Source: All India Survey on Higher Education 2020-21[14]

Gender disparities in STEM become visible from the higher secondary level of schooling, up to which it is mandatory to pursue science and mathematics. Here, even though prejudices shape choices, factors such as interests based on skills favourable to other disciplines[15] (like vocabulary) may also play a significant role. Therefore, this essay focuses on tertiary education (where women have opted for STEM), and STEM-based professions (recruitment, retention, and leadership positions).

[b] 'Multiple bind' refers to disparities within the gender disparity in terms of other intersections of marginalisation in terms of caste, class, region, age, and ethnicity of women.

Women and STEM: Persistent Gender Disparities

Prejudices

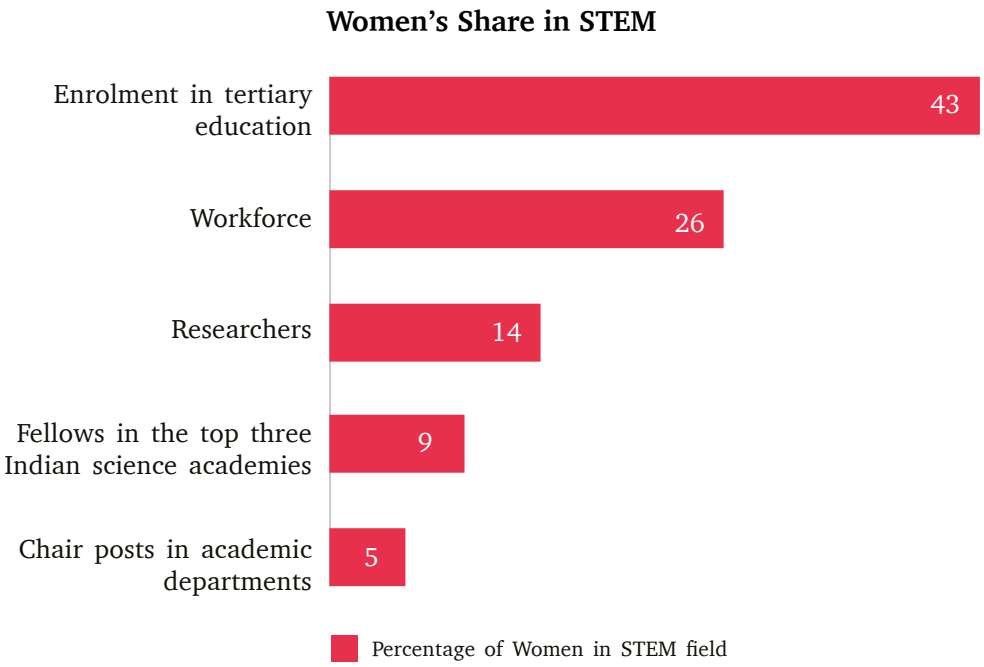
The socio-cultural prejudices that associate hegemonic masculinity with the STEM streams[16] begin from the gendering of the girl child, in the form of less or no exposure to tools, toy vehicles, games, and puzzles; the overt (white) masculine image of STEM professionals in textbooks; the lack of female role models and success stories of women in STEM;[17] the stereotypical ability-competency myths[18] of teachers, parents and peers; and the psychological barriers contributed by media and popular culture that reinstate these stereotypes. Additionally, the STEM fields encompass seeking answers to problems,[19] thinking objectively and rationally beyond the norm, being stubborn and persistent to the work, and applying the trial-and-error method that girls are often discouraged from applying in real life situations as they are often expected to be compliant to customs and norms. Such childhood baggage makes women doubt their inherent talent, learning ability, and employability, in the male-dominated STEM fields.

Additionally, women who chose the STEM fields encounter femininity penalties[20] like stereotype-based threats and backlash.[21] Various studies indicate that women face behaviours that create an unfavourable environment in the college, classroom, lab or workplace, including ragging, micro-aggressions, overt discouragement, trivialisation, and control over their appearance and behaviour.[22] These behaviours contribute to increased anxiety, work stress, and depression, and are barriers to the retention of women in STEM.

At the same time, women in the productive age group in India face marriage, motherhood, and childcare penalties that compel them to be voluntarily unemployed or take a career break, with re-entering the STEM fields becoming extremely difficult. Those who manage to be employed face the 'double shift' of working at home as well as in the workplace as per their traditional gender roles. This results in time poverty, leisure gaps, and exhaustion. Nearly half of the respondents in a study conducted by NITI Aayog on women in the sciences said that care responsibilities prevented them from utilising challenging opportunities in their careers, while around 30 percent said their STEM careers disrupted their work-life balance.[23]

Also, various macro- and micro-level studies show that gender gaps in promotion and leadership are more severe in the STEM fields; employers are reluctance to accept evidence of these biases;[24] and this discrimination extends to fellowships, awards, and membership in committees, resulting in lesser acknowledgement, recognition, and visibility of women professionals in STEM, which sustain existing prejudices. All these factors intensify the leaky pipeline (see Figure 2).

Figure 2: The Leaky Pipeline of STEM in India



Source: Malhotra and Gupta, 2022[25]

Predicaments

Restrictions based on women's mobility, marriage priority, mandatory motherhood, carer role, and information illiteracy contribute to the overall gender gap, which is exacerbated in the STEM fields. As the STEM fields require educational and professional trainings that incur substantial financial and time investments, many families view these unfavourably. As many empirical studies suggest, support from parents[26] and partners, and the availability of childcare assistance (either familial or institutional)[27] are integral to the entry and retention of women in STEM.

Women also face uncertainties associated with tenure posts, temporary positions, and delays in disbursement of fellowships and contingency grants in their early career, while they may also have to contend with overt pressure to get married and have children. In the hiring process, the ability to work for long hours[28] is considered a desirable criterion and women encounter questions related to family-work balance and time management, and are reminded of their care responsibilities. Additionally, women may also struggle to maintain their individuality due to overshadowing if their spouses are also in the STEM fields.[29] A report indicated that about 81 percent of the Indian women in STEM faced gender bias in performance evaluations and a large proportion felt that their companies would not offer a top position to women.[30] This leads to a glaring gender gap in terms of wages, with a recent report indicating that women in STEM are likely to start their careers with significantly lower incomes than their male counterparts.[31]

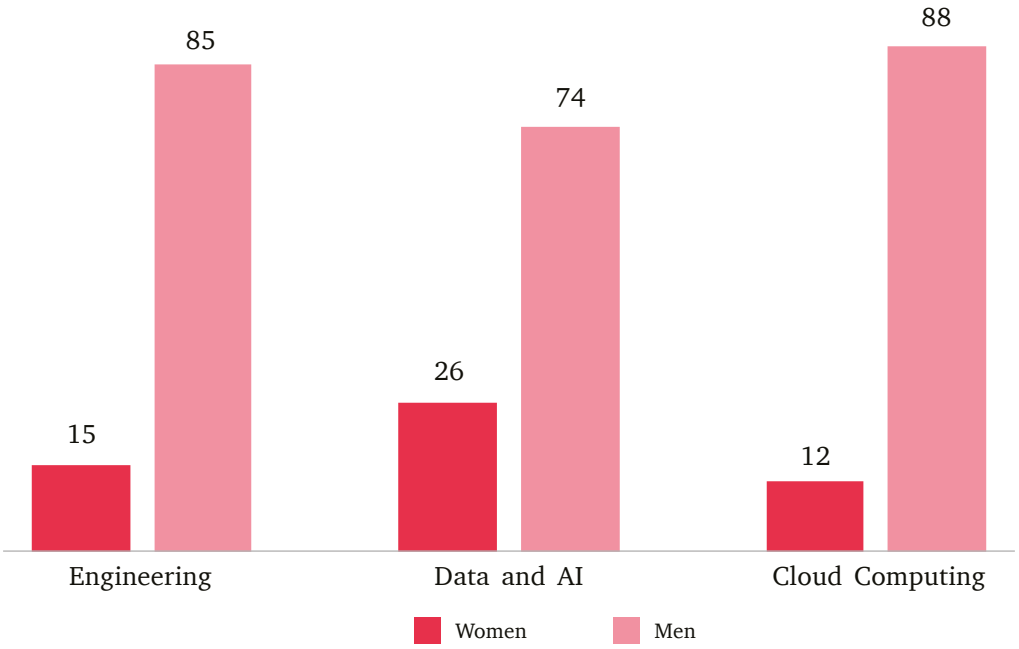
While prejudices and inequities exclude women from opportunities, infrastructural impediments such as commutation problems, inadequate accommodation near the workplace, and inflexible working hours hinder their ability to stay in STEM careers. Multiple studies have highlighted that the gendered digital divide and increased care work for women during the COVID-19 pandemic severely affected their ability to work from home. Similarly, of the men and women who discontinued studies or lost jobs during the pandemic, women are less likely to re-enter the field.[32]

The STEM professions require constant skill upgrading. If women fall far behind in skills, they are at risk of being replaced by advanced technology.[33]

AI and Gender Bias

Recent studies showcase the gender bias of AI in design, data sets, and decision-making that perpetuates existing stereotypes, and further excludes women from the labour market.[34] Many AI designs read and reproduce data from an elitist male perspective, which are due to the inherent, normative gender biases in society, as well as the underrepresentation of women professionals in data and AI related fields[35] (see Figure 3). For example, in 2018, Amazon has to abandon its hiring AI that heavily excluded female candidates.[36] This highlights the importance of intersectionality in design assessment and the better representation of data. The UN's proposal for a Global Digital Compact that audits technologies to ensure that they are rights-based, ethical, and inclusive, is a step in the right direction.[37]

Figure 3: Global Share of Men and Women in Engineering, Data and AI, and Cloud Computing



Source: World Economic Forum, 2020[38]

Policy Recommendations

Existing laws, policies, and schemes in India that aim to encourage more women to enter the STEM fields are promising and forward-looking. However, many are generic in nature and lack the spirit of actionable agenda. Although the Science, Technology and Innovation Policy addresses gender disparity in these activities,[39] it fails to offer any prescriptive and implementable agenda to integrate these. The 2020 draft Science, Technology and Innovation Policy aims to fill such lacunae as it comprehensively advocates gender equity and inclusivity in education and in the labour market. The underutilisation of funds, reduction in private investments for research and development, and negative growth in expenditure in the Ministry of Science and Technology in recent years[40] could be detrimental to the goals of the revised policy. Another gap is the lack of information and/or difficulties in accessing existing schemes by the targeted beneficiaries. Based on the available evidence at the field level, the authors suggest affirmative actions in the following key areas:

Social perception changes through education policies

Gender-sensitive education policies that challenge stereotypes in the curriculum from the pre-primary level will have lasting impacts. The ministries of science and technology, education, and women and child development could collaborate under the aegis of the *Beti Bachao Beti Padhao* (Save the Girl Child, Educate the Girl Child) scheme to undertake several initiatives, such as providing detailed descriptions and images of successful women, including those identifying as LGBTQIA+, in the STEM fields in school textbooks; activity-based learning in the classrooms on women role models; provide opportunities for interaction with women working in varied areas; and field visits to STEM laboratories and offices.

Needs-based training, upskilling, and support

To bridge the gender digital divide, promote upskilling, and retain women in STEM, public-private partnerships could be encouraged to create learning communities for women, subsidised community education, free online coaching and tuition for entrance examinations, popularising bridge courses that allow credit transfers, and women mentor-mentee programmes. The Ministry of Science and Technology's Gender Advancement for Transforming Institutions programme needs to be further strengthened to ensure gender parity in higher and quality education. Other schemes, such as Women in Science and Engineering-Knowledge Involvement Research Advancement through Nurturing (WISE-KIRAN) and Consolidation of University Research through Innovation and Excellence in Women Universities (CURIE), need to be popularised. Upskilling, soft-skills enhancement, and mentorship and coaching could be provided at the mid-career level to help promote women into leadership positions.

Topographical and intersectional evidence-based research data on the leaky pipeline

There is little data on STEM graduates and their employability in India.41 This impedes the framing of relevant policies for addressing gender parity in STEM. NITI Aayog can consider devising mechanisms to collect robust data pertaining to topographical and intersectional evidence-based research on the leaky pipeline either separately or alongside the SDG Index report. Similarly, diverse research on

the women who have discontinued STEM careers is required to reintegrate them into the labour market and to understand the nature and extent of challenges they face. Assessing unintentional consequences42 of present and future policy interventions is equally important by measuring its impact through rigorous action research, monitoring, and evaluation of delivery mechanisms. Multilateral organisations and universities could conduct field-based studies and compile the data for policy inputs.

Workplace policies and practices

While addressing women's care work responsibilities through workplace policies, efforts should also be made to reduce and redistribute these tasks. Concurrently, the organisational practices that limit women's contributions must be identified and resolved. Policies and practices that can be beneficial include women employees getting preference when housing quarters are allocated; partners in a relationship being recruited (if qualified), especially if it involves relocation; the provision of crèches and elderly care facilities, flexible timings, and work-from-home opportunities for employees with young children or dependent parents; child care facilities when traveling for work, encouraging higher studies, deputation, sabbatical leave, and administrative positions for women employees; and presenting an organisation-wide gender-parity evaluation report.

Similarly, while addressing the future of work, introduction and practice of laws that establish organisational standards and corporate code of ethics to ensure transparent and ethical use of AI43 must also ensure gender equality as a standalone goal.44 In one way, AI systems might be utilised to tackle gender gaps within the system. At the same time, feminist data practices45 that centre the voices and experiences of marginalised people, including women and queer individuals, can be used to fill the identified data gaps.

[c] Social capital refers to the social networks and interpersonal relationships that result in better social functioning. Women's restricted mobility and limited access to public places curb their social capital generation.

Social capital[c] generation

There should be an exclusive network for women in STEM and those who wish to re-enter the STEM fields for information-sharing, mentoring, and peer support. Similarly, providing fellowships to women to promote their re-entry into the labour force could be one of the objectives of corporate social responsibility funds. Women are often forced to switch from technical to soft skills jobs when re-entering the labour force due to lack of updated skills. In such a scenario, government organisations can provide training and hire such women in technical positions through special drives, and promote similar initiatives in the private sector by subsidising the diversity cost-burden for small firms.

Policy interface and scheme convergence

There is a need to identify the existing enabling policies that promote diversity in STEM and their interlinkages with other policies. The Ministry of Women and Child Development's existing policy mechanisms and schemes can be interlinked with those of the Ministry of Science and Technology for a proactive promotion of STEM programmes among women and girls. Similarly, NITI Aayog's science and technology verticals can provide consultative status to the Ministry of Women and Child Development to focus on ensuring gender parity in STEM. Concurrently, women in STEM schemes should be integrated into the plans of other ministries such as education, labour and employment, skill development and entrepreneurship, commerce and industry, and social justice and empowerment, with special focus on the action plan for Agenda 2030 and Vision India 2047.[d]

[d] NITI Aayog coordinates the United Nations Sustainable Development Goals (SDGs), also known as Agenda 2030, to be implemented in India by 2030. Vision India 2047 refers to the benchmarks set for the growth and development of the country by the centennial of independence in 2047.

Conclusion

India has demonstrated its commitment to the advancement of women and girls in STEM at the tertiary level. However, it continues to lag in generating employment for women commensurate with their qualifications and in retaining women in the fields to advance into leadership positions. Systemic gender bias, lack of diversity, fewer role models, unpaid care work and discrimination continue to impede greater participation of women in these fields. Envisioning schemes that prioritise gender-sensitive polices (in early child education curriculum, classroom diversity, career entry, retention, advancement, and re-entry); monitoring and evaluating schemes at regular intervals; gender budget allocations; and a balanced ecosystem approach that includes women in both policy design and implementation are integral for an inclusive STEM sector.

As technology continues to influence daily lives, ensuring that it does not reinforce gender biases will be critical to creating gender parity in the future of work. International development cooperation must leverage women-led development in STEM. Establishing a common mentor-mentee programme between countries can further aid researchers through scientific networking. For STEM to become a genuinely egalitarian and level playing field, it must be free of gender bias and stigma that impede progress for women and girls.

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VII.

The Case for Women-Led Climate-Smart Agriculture

M. Manjula

Abstract

CLIMATE-SMART AGRICULTURE (CSA) is an approach that helps guide actions to transform agri-food systems towards green and climate-resilient practices, thus enabling agriculture to meet the Sustainable Development Goals (SDGs) and the objectives of the Paris Agreement. Gender plays a significant role in determining the adaptive capacity of the stakeholders through innate differences in their initial vulnerability context. The often gender-blind nature of agricultural interventions deepens these differences, impacting women's coping and adaptive capacity disproportionately. Women's ability to adopt and benefit from CSA approaches is highly correlated to the socially and culturally mediated gender gap in agriculture. This article makes a case for gender mainstreaming agricultural interventions, focusing on CSA. It provides a snapshot of various effective and scalable efforts being made across the world to promote gender mainstreaming for CSA. The pitch for gender mainstreaming and the proposed interventions can provide insights on developing a strategic framework for collaborative action on gender and agriculture by the G20.

CSA as a Transformative Pathway in a Changing Climate

THE SIXTH ASSESSMENT Report of the United Nations Framework Convention on Climate Change (UNFCCC), "with medium, high, and very high confidence", attributed changes in agriculture and crop production, livestock, and fisheries across the globe to climate change.[1] Expected to become more severe over time, these climate-induced changes are bearing a massive impact on the food and livelihood security of millions of people. Declining agricultural productivity can result in food shortages, high food prices and increased price volatility. This will further push millions of low-income populations to hunger. The smallholder producers in developing countries, who are dependent on agriculture, will be made even more vulnerable because of direct effects on food availability, and indirect effects on incomes and loss of livelihood.

At the same time, agriculture and food systems account for 26 percent of the total greenhouse gas emissions globally.[2] Sustenance of this sector will depend on its ability to both adapt to and mitigate climate change. The Paris Agreement emphasised the need for limiting the increase in global temperature to 1.5 °C above pre-industrial levels. All sectors of the economy, including agriculture, need to find ways to reduce greenhouse gas emissions. This calls for innovative methods of engaging in the business of agriculture which are not only profitable, but also environmentally benign and socially inclusive.

Against this backdrop, this article examines the potential of climate-smart agriculture (CSA) in bringing transformative changes amidst a changing climate. The concept of CSA was first proposed by the Food and Agriculture Organization of the United Nations (FAO) at the Global Conference on Climate Change, Food Security and Agriculture at The Hague in 2010. CSA is said to offer a unique opportunity to integrate the mitigation potential and the adaptation needs of the agricultural sector, maximise synergies and co-benefits, reduce tradeoffs, and ensure the sector's continued contribution to food and livelihood security.

CSA also gains prominence in the context of the current push towards a green economy. It comprises three pillars: (i) increasing productivity and income; (ii) building resilience; and (iii) reducing and/or removing greenhouse gases.[3] Thus, CSA advocates a multipronged approach to creating enabling technical, policy and investment conditions to realise in a changing climate sustainable agriculture

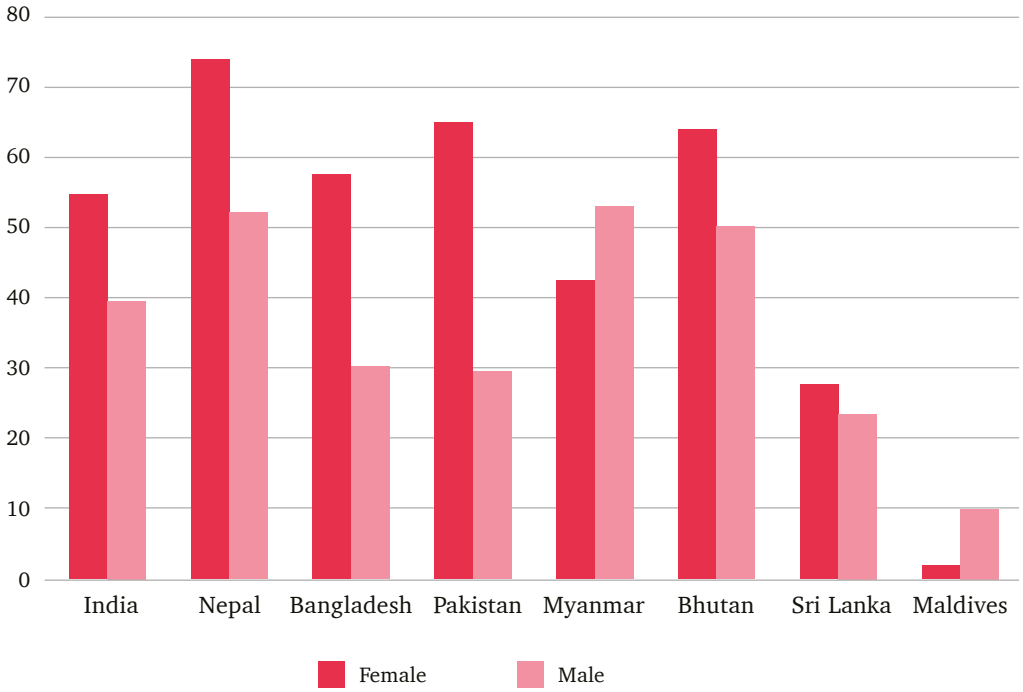
development through managing tradeoffs and synergies. The approach pitches itself on both global and local scales by addressing climate change issues globally and enabling adaptation to climate change locally.

Gender plays a significant role in determining the adaptive capacity of the stakeholders through innate differences in their initial vulnerability context, which in turn is again influenced by gender. Gendered norms create differential vulnerability dispositions and contexts. Women's ability to adopt and benefit from CSA approaches is highly correlated to the socially and culturally mediated gender gap in agriculture. The intersection of gender, agricultural development and climate change can be understood by examining the interaction of climate signals with the vulnerability context—the socioeconomic, biophysical, ecological and institutional arrangements—and the consequent influence on an individual actor's ability to adapt.[4]

The Intersectionality of Gender, Climate Change, and Agriculture

Women play a crucial role in agriculture and account for 43 percent of the total labour force in the sector. This represents 25 percent of the total female employment globally.[5] The share of agriculture to total female employment ranges from 2 percent in high-income countries to 63 percent in low-income countries. There is variation across regions, with South Asia and Sub-Saharan Africa accounting for more than 50 percent of the total female employment in the agricultural sector (Figure 1). Nearly 50 percent of the world's livestock managers and 50 percent of the labour force in small-scale fisheries are women. These data are still an underestimation of the role of women in agriculture, given that a substantial part of women's engagement in agriculture involves unpaid family labour and therefore, invisible in official statistics.

Figure 1: Employment in Agriculture in South Asia, By Gender (2019, in %)



Source: The World Bank, 2020

However, gender-based discrimination, limiting rural women's capacity to realise their full potential as economic agents, is a reality across regions. The gendered yield gap in agriculture, attributable to the gender gap in access to productive resources, averages between 20 percent to 30 percent. Social and gender norms limit opportunities available for women and have economic and social costs. Women's land ownership accounts for about 10 percent to 20 percent of the total land holdings, with smaller holding size, compared with that of men. True also for livestock and other productive resources, this has implications in terms of access to agricultural development programmes for women, as the very definition of a 'farmer' is linked to possession of land.[6] South Asia, with the exception of Bhutan, reports the highest gender-gap in land holding.[7] The land parcels owned by women are smaller in size compared to those of men, and in most instances, ownership does not translate to control over land for women farmers.

Less than 10 percent of women engaged in farming can access credit and insurance. Women are much less likely to use purchased fertilisers, seeds, tools and technologies than men. They are excluded from extension services and are less likely to acquire new knowledge, information and skills related to agriculture and

allied activities.[8] Women-headed farm households have fewer farm labour available for work and possess half of the educational attainments. Women face constraints on accessing market-based formal risk reduction mechanisms in agriculture.

The gender division of labour and the phenomenon of increasing feminisation of agriculture accentuate the vulnerability of women farmers, limiting their ability to engage with adaptation options. The gender division of labour in agriculture exposes crops and enterprises, which are differentially men- and women-specific, to the negative impacts of climate change.[9] Women are more inclined to engage in subsistence crops and activities while men take up cash crops. Men's activities are supported by animal or machine power while women engage in more manual and labour-intensive work.

Gender relations, which extend beyond the productive sphere of agriculture to social reproductive engagements, dictate that unpaid household chores, such as cooking, fetching water and fuel, and caregiving, be considered largely the responsibility of women. Time poverty among rural women is cited as a primary reason for their low level of participation in technical trainings and awareness programmes. Because of gender norms as well as time poverty, women have poor representation in agricultural extension activities. Given the gender digital gap in mobile ownership, internet access and ICT skills, women face challenges to accessing digitally enabled agricultural extension and services.[10]

The gender gap in resources and agency affects women farmers' adoption potential with regard to CSA technologies. Analysis of select CSA practices reveals that the cost ranges from US$ 3 to US$ 538.[11] Furthermore, male outmigration, caused by climate change-induced losses in crops and, therefore, incomes—has resulted in the changing gender composition of rural areas, especially in South Asian countries—this phenomenon is called the 'feminisation' of agriculture. Depending on how the existing sociocultural and gender norms shape the process, it can result in either 'labour feminisation' or 'managerial feminisation.'[12] In the case of 'labour feminisation', it results in increasing the workload of women without any change in their access to productive resources and decision-making power. In 'managerial feminisation', women gain recognition, decision-making power and access to productive resources and this in turn results in improvement in their vulnerability context and adaptive capacity.

Closing the gender yield gap by bridging the gendered resource gap and the gendered vulnerability gap, can increase agricultural outputs by 2.5–4 percent, reduce undernourished population by 11–17 percent, improve women's intra-household decision-making power, and create intergenerational benefits in terms of healthier, better educated children.[13]

CSA approaches have the potential to reduce the gender productivity gap due to climate change. However, this requires CSA approaches and programmes to be gender-aware, gender-inclusive and gender-transformative. According to estimates, in 2020, 52 percent of the World Bank's agricultural financing focused on climate adaptation and mitigation.

The G20 forum is based on the 'Framework of Strong, Sustainable and Balanced Growth', which also emphasises inclusive and resilient growth. Incorporating gender perspectives in this framework will go a long way in addressing gender gap issues in economic policies and collaborative actions, pertaining to sectoral engagements in the G20. The Women 20 (W20) engagement group can widen the focus of its gender-inclusive growth strategy to close the gender gap in agricultural livelihoods.[14] Gender mainstreaming for CSA can be an effective strategy in this regard. The next section looks at some of the global attempts at engendering CSA that the G20 can learn from and adopt.

Scalable Solutions: Efforts for Gender Mainstreaming in CSA

Efforts at gender mainstreaming CSA include interventions across the agricultural value chain, at the levels of practice, process, technology and service delivery. The following sections highlight some of these efforts, though these are not exhaustive.

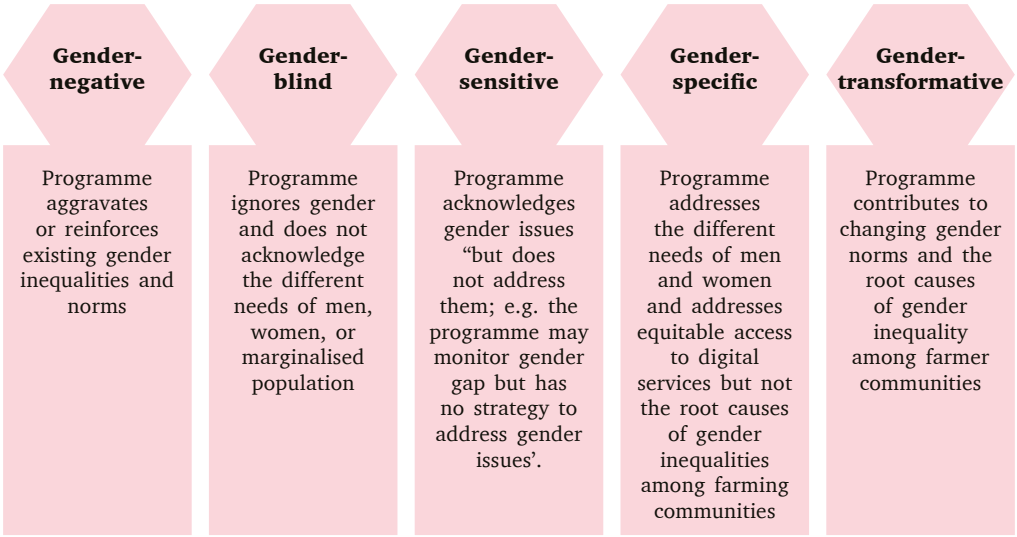
Closing the Gender Gap in Policy and Programme Design and Assessments: Climate hotspots were successfully mapped in India and Nepal to identify gender-specific vulnerabilities for focused gendered adaptation responses.[15,16] Inclusion of gender-transformative outcomes in agricultural strategies is recognised as an effective way of mainstreaming gender in policies and programmes. In line with this recognition, the Gender Empowerment Index for Climate-Smart Villages was developed and applied to assess the gendered impact of the climate-smart villages initiative on the Indian states of Bihar and Haryana.[17] The study aimed to capture the gendered changes over the four years of Climate-Smart Villages interventions

which began in 2011 to 2015. The Mesoamerican Agro-environmental Programme of Norway, meanwhile, follows a 'climate-smart territory' approach that incorporates gender indicators to assess the degree and extent of gender equality that the programme generates at the household, business and government levels.[18]

Guidelines and toolkits, developed by FAO, the World Bank and CGIAR institutions, provide useful frameworks for closing the gender gap in design and implementation of CSA. The International Fund for Agricultural Development (IFAD) model for promoting gender equality outlines approaches and identifies key leverage points for scaling up gender- and socially inclusive CSA.[19] Innovative research tools to address the gender and climate change research gaps resulted in understanding and catalysing gender-sensitive CSA practices in Andhra Pradesh, India.[20]

The knowledge action group of the Global Alliance on Climate-Smart Agriculture (GACSA) and its six regional alliances work on brokering relationships among its members, partners and programmes for building evidence on the critical role of gender in climate-smart agriculture. Figure 2 shows the schematic transition from a gender-blind approach to a gender-transformative one, adopted in designing inclusive digital solutions in agricultural programmes, bridging the gender digital divide, supported by the GSMA Innovation Fund for Digitisation of Agricultural Value Chain, which is an initiative to close the gender digital gap in agriculture.[21]

Figure 2: Schematic Representation of the Gendered Nature of Programmes

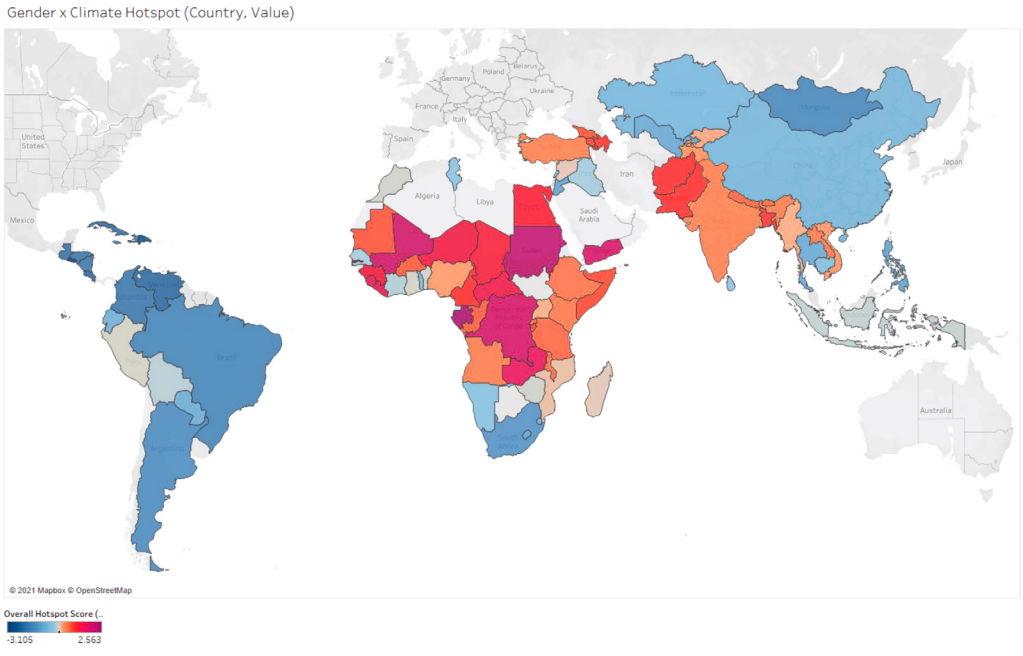


Source: Adapted from GSMA – Gender Disaggregated Data in Digitisation of the Agricultural Last Mile

Closing the Gender Gap in Climate Information: Gender-inclusive, ICT-based communication tools and interactive radio programmes have led to targeted dissemination and wider adoption of climate information by women farmers in Rwanda, Tanzania, and Malawi.[22,23] Similar efforts made for targeted dissemination of weather forecasts and agro-advisories through ICT-based tools and capacity-building for operationalising advisories reported improvement in decision-making powers of women farmers in India.[24,25] Context-specific information and knowledge of issues and solutions for climate change, shared by farmers on social medial platforms, have resulted in wider dissemination and adoption of CSA technologies by women farmers across Vietnam.[26] The Senegal Meteorological Service uses a guideline, based on gender division of labour, to develop and disseminate targeted early warning advisories and hazard surveillance reports.[27]

Climatelinks, a global knowledge portal for climate and development practitioners, mapped low- and middle-income countries on the climate-agriculture-gender inequity hotspots index, which they developed on the basis of gendered data on climate hazards, exposure and vulnerabilities.[28] The mapping provides gender-disaggregated spatial climate information to design targeted programmes and channel investments in a focused manner to address the gender gap in climate adaptation and mitigation (Figure 3). The orange patches indicate a higher climate-agriculture-gender inequity score than that represented by the blue regions.

Figure 3: Climate-Agriculture-Gender Inequity Hotspots in LMICs



Source: cgspace.cgiar.org

Closing the Resource, Technology, Services, Finance and Market Gap: Successful cases include interventions in irrigation technologies and biofertiliser production that help save women's time and labour in irrigation and harvesting activities;[29] women's training in conservation agriculture, using CSA approaches in Senegal;[30] and the gender-sensitive rollout of rice drum seeders in Laos to improve climate resilience.[31] Women's network-supported paralegals help women in Rwanda claim and exercise land rights, access public agro-credit, and approach public offices for redress.[32]

In 2011, the Indian Council of Agricultural Research (ICAR) launched the National Initiative on Climate Resilient Agriculture (NICRA) in 151 climatically vulnerable districts across the country. It started with developing the Climate Vulnerability Atlas and culminated in the establishment of 151 model climate-resilient villages (CRVs), which showcased a combination of technological and institutional interventions, and the formation of village climate-resilient management committees, custom hiring centres for tools and machineries and seed and fodder banks.

About 28 percent of the agricultural schemes under various missions in India have earmarked funds for women in agriculture. To strengthen gender equity in Indian agriculture, the Government of India has done the following: (i) allotted 30 percent of the total budget of all ongoing schemes and programmes to women beneficiaries; (ii) focused on women-centric, beneficiary-oriented initiatives; and (iii) promoted women's self-help groups for better credit linkage and inclusion of women in decision-making bodies. India has a centrally funded, dedicated programme for women farmers, called *Mahila Kisan Sashaktikaran Pariyojana,* and celebrates 15 October every year as International Rural Women's Day.

Initiatives at the subnational level include support provided by the women's joint liability group to collective farming on leased land under '*kudumbasree*'—Kerala's poverty alleviation programme. On similar lines, Swayam Sikshan Prayog, a Pune-based non-profit organisation, created the 'one-acre' model of women-led climate-resilient farming, wherein women farmers grow food crops, using low-cost and water-efficient organic farming practices, across Maharashtra, India.[33] The Gorakhpur Environmental Action Group (GEAG), a non-profit organisation, working in 90 villages in the Indian state of Uttar Pradesh, trains women in climate-resilient farming, in addition to facilitating access to resources through encouraging joint land titles.

M-pesa or mobile money is an initiative that resulted in improving financial inclusion and entrepreneurial capacities of women farmers in Kenya.[34] A multilateral initiative, Women's Empowerment through Climate-Resilient Agriculture Value Chains, implemented across six countries in West and Central Africa, adopts interventions that help improve women's access to land, skills, technology, finance and markets.[35] Similarly, the GSMA Innovation Fund for Digitisation of Agricultural Value Chain has covered 153,000 women farmers across Indonesia, Nigeria, Pakistan, Rwanda, Sri Lanka and Tanzania. The programme was designed to develop gender-inclusive value chains, disseminate market information, and improve market linkage of smallholders.

Conclusion

The G20 has enormous potential for mainstreaming gender in agriculture. However, efforts for gender mainstreaming should move beyond the men-women dichotomy or token references to gender. To be impactful, gender mainstreaming should address structural inequalities such as those pertaining to rights to land and inheritance, access to financial assets and market-based adaptation strategies, and active participation at all levels of decision-making.

Engaging women in CSA without a critical analysis of their vulnerability context, the risks they face and the differential adaptive capacity will only exacerbate existing gender disparities and reinforce women's subordinate positions. Building evidence through research on gendered outcomes from inclusive CSA can strengthen the policy framework for gender mainstreaming in CSA. Translating gender mainstreaming intent to commitments in CSA requires multilateral forums for economic cooperation, such as the G20, to channel dedicated allotment of resources by individual countries and provide climate financing for developing countries.

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Endnotes

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VIII.

Women as Key to Water Security

Ambika Vishwanath and Sanya Saroha

Abstract

WOMEN, OFTEN THE PRIMARY caregivers and managers of their households, are also the most vulnerable to the impacts of climate change and water and health insecurity. Therefore, meeting women's needs for water, sanitation, and hygiene can drive gender equity and unlock the potential of half of the global population. This article examines the barriers to water security faced by women in India and outlines how addressing these challenges can improve the health security of women and girls, in turn aiding the country's growth. To be sure, the state of water security, planning, and access in India has changed over the last decade and there are many new opportunities on the horizon. This essay recommends, among others, raising awareness of the critical intersection of water and women's empowerment, learning from best practices, strengthening gender budgets, and intensifying public-private partnerships. India has a unique opportunity to lead this conversation towards a deeper understanding of the need for sound policies on water and women's empowerment, and can offer insights to other countries facing similar challenges.

Introduction

WATER SECURITY IS AN emerging priority for the global community, largely necessitated by climate change and the growing risk of conflict. India ranks 13th of the 17 most water-stressed countries in the world.[1] While it does not yet suffer from scarcity, the country experiences heavy stress on its freshwater resources due to the interconnected issues of climate change, population growth, expanding urbanisation, industrialisation, and poor management of water supply. Climate change accounts for 5.9 percent of water loss from the country's lakes and reservoirs every year.[2] According to the 2018 Composite Water Management Index by NITI Aayog, around 200,000 people die each year due to inadequate access to clean water.[3] This is despite India being one of the world's largest extractors of groundwater and, as of 2021, responsible for 25 percent[4] of global groundwater extraction.[5] It is also estimated that overall demand across sectors will nearly double the supply by 2030.[6] Such water stress can have far-reaching consequences on food production, energy security, health, and migration within and across borders. India's ambition to be a five trillion-dollar economy by 2025 could be curtailed by worsening water stress.

The present water crisis can be blamed on decades of poor management practices, and reversing current trends will need a more inclusive approach and a shift in thinking. This involves understanding how water is, fundamentally, a women's issue. Solving any type of water crisis will therefore need the involvement of half the world's population.

Women in India are more vulnerable to the water crisis as they are often expected by cultural norms to be responsible for water collection and management at the household level. The time and effort spent on accessing water has cascading effects on various development indicators, including education, employment, health, hygiene, and participation in society. This weakens women's role as leaders, thereby limiting their decision-making abilities and hampering their access to basic property and land ownership rights. In rural India, 80 percent of women are employed in the agriculture sector, but only 13 percent own agricultural land.[7]

It must be understood that women's water and land rights are interlinked, and have implications for their social and economic well-being. Climate change and related shifts in monsoon patterns, changes in temperature, droughts, and floods

further complicate the challenges. For example, women and girls from Dindori district in Madhya Pradesh descend 30 feet into a well during the summer months to collect water.[8] Similarly, women living in slums in Delhi spend between two to five hours every day for the task.[9]

The opportunity cost is tremendous (see Table 1).

Table 1: The Economics of Women and Water

Water stress will cause a 6% loss in GDP by 2030.[10]	
Women's contribution to India's GDP	17%[11]
Income loss due to women fetching water	Approximately INR 1000 million[12]
Equal participation of women in workforce	could add an estimated INR 62.9 trillion (US$770 billion) to the GDP by 2025[13]
Dropout rate of girls in school due to water and sanitation issues	23%[14]

It is therefore important to view the water crisis in India through a gendered lens and imagine new ways of ensuring women's participation in the many aspects of policymaking and governance. In India, women have been denied agency in many areas of life and have not been considered equal partners in decision-making; the approach has largely been to view women as passive recipients of policies. The Indian government is pushing for 'women-led development' and *nari shakti* (woman power) to achieve the Sustainable Development Goals by 2030. But without integrating gender into the policy discussions around water, many of these powerful goals will not be realised.

Key Barriers to Women's Water Security

Women comprise only 26 percent of India's organised workforce and account for 17 percent of the country's GDP, approximately 20 percent lower than the global average.[15] Low employment rates are due to a variety of factors, including access to education and cultural opportunities, many of which are directly or indirectly

linked to water. Indian women spend 150 million workdays each year fetching water, equivalent to a national income loss of approximately INR 1000 million.[16] Around 23 percent of girls drop out of school when they reach puberty, largely due to a lack of access to water and sanitation.[17]

The relationship between water and gender mirrors gender inequalities in other areas, including ownership and control over assets, employment, household division of labour, and exposure to and management of risk. This plays out in numerous ways, mainly in the assigning of water collection responsibilities to women. Without easy access to adequate and safe water, women spend substantial time and energy in collecting and bringing water back to their homes, often from distant areas. Despite this, women's participation is often missing in many household discussions around education, employment, labour, and ownership of assets. Limited resources exacerbate existing power imbalances.

For example, the 2017 Bihar flood[18] and 2019 drought in Chennai, Tamil Nadu,[19] led to loss of agricultural jobs, largely affecting women. Examining the effects of the Bihar flood, researchers discovered an increase in the number of cases of domestic violence, trafficking in the name of marriage, and instances of abuse in relief camps. Lower household income levels also result in young girls bearing the brunt of economic disadvantage—they are either forced to leave school to manage their households or are married off to reduce the economic burden. In rural Maharashtra, there are even instances of men taking 'water wives' to address water shortage issues.[20]

As women and girls in rural India come in direct contact with water for most household tasks, they face additional health challenges. Around 70 percent of surface water in India is contaminated by untreated sewage and other pollutants flowing back into the water systems,[21] increasing the possibility of waterborne diseases, such as cholera,[22] diarrhoea, and hepatitis A.[23] A majority of women still use (and reuse) cloth as a menstrual absorbent, limiting movement. Further, due to a lack of appropriate sanitary facilities, girls avoid replacing their old absorbents while at school.[24] These practices result in poor menstrual hygiene, increasing the chances of acquiring infections, and affecting the reproductive system over time, leading to pre-term births and low birth weights.[25]

A recognition of the crucial role women could play in the development of India's water strategy is reflected in the 2002 National Water Policy[26] which focused on agriculture. The 2012 National Water Policy[27] also acknowledged women as a vulnerable group that must be considered during policymaking. However, these policies did not provide specific means to integrate women as stakeholders. While the 2014 Swachh Bharat Mission prioritised sanitation and hygiene and the 2019 Jal Jeevan Mission (JJM) prioritised access, the imperative is a stronger gender lens in implementing these schemes and policies. Women must be given the tools to become changemakers and drivers and not only recipients of aid or policy.

What Can We Do Better?

Women as key stakeholders in water management and policy

For policies to work better, they must address problems caused to women's productivity and quality of life by the lack of water and climate change. As key stakeholders, women and girls' perspectives should be considered when developing initiatives and programmes to increase the availability of clean water for all. Women produce 60 percent to 80 percent of food and 90 percent of dairy products in India. They comprise 75 percent of the agricultural workforce,[28] and 60 percent to 70 percent of the workforce in the textile industry. These are all water-intensive sectors. Women also contribute to the maintenance and construction of irrigation systems in India. The capacity of women to exercise strategic decision-making both within and outside their own households is one of the most important indicators of women's empowerment and agency. The JJM mandates that at least one-third of the village water and sanitation committee members be women, a move that should be scaled-up in tandem with local civil society organisations.

According to the Indian Institute of Management in Ahmedabad, women in the working age group (15-60 years) suffer from "time poverty" as they spend 7.2 hours on unpaid domestic work per week, while men spend only 2.8 hours.[29] The JJM's 'piped water for all' scheme is critical in breaking this vicious cycle of expecting women to do unpaid domestic labour. Reducing women's burden of water collection could give them more time to invest in children's nutrition and education, and participate in market-oriented activities. A number of schemes that have prioritised women's participation have succeeded in positively changing women's lives. The 'anytime water machines' (ATMs) launched in rural India in

2008, for example, is today a successful women's empowerment project. By 2016, 56 percent of these ATMs were operated and managed by women.[30] Safe Water Network and USAID also pioneered the 'Water Aunties' programme in 2019, helping train and support women social entrepreneurs. The programme is operational across 23 cities in 11 states with six implementing partners, including Drinkwell Systems, JanaJal, and Maithri Aquatech. These ATMs save time, permitting women to pursue daily-wage work, earning between INR 330 and INR 400 per day,[31] advancing a positive cycle of economic empowerment.

Furthermore, mentorship and leadership trainings are key tools in aiding women to be effective advocates and decision-makers in water governance and management. Similarly, offering women networking opportunities with groups that target other sectors, such as health and education, is an important empowerment mechanism. The iJal Women's Empowerment Programme, piloted in Telangana's Medak district, has met with success in boosting female entrepreneurship and livelihoods. It did this by expanding opportunities for the district's self-help groups (SHGs) and linking them to new sources of income, while also providing the community with access to reliable water supply. At the end of 14 months, there were 49 SHGs actively managing water stations in the district, with such stations providing safe water to over 150,000 people.[32]

Strengthen Gender budgeting and funding

Gender budgeting can ensure that women benefit equally from economic growth and development. As of 2023, the Indian government has allocated INR 22.3 million to the gender budget for schemes focused on mitigating the prevailing gender gap, a 2-percent increase from the revised estimate of INR 21.8 million in 2022-2023.[33] The gender component in the current fiscal year's budget is approximately 5 percent of the total expenditure, amounting to 0.8 percent of the GDP. Having gender disaggregated data will help utilise these funds in a more efficient and impactful manner. For example, data on how many women benefited from the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in a financial year could help track outcomes, identify problem areas, and understand whether they vary across communities and groups, or across states and regions. While data on states is increasingly more available, within states and across communities, gender gaps persist. The benefits of gender budgeting

have been highlighted in various case studies, such as the World Bank's report[34] on gender responsive budgeting that looks at the impact of public expense across different genders.[35]

While the MGNREGA is one of the biggest schemes focused on livelihood, other areas that also need attention, such as water collection, remain overlooked. For example, the JJM, which has now brought piped water to nearly 60 percent of households in India, does not have a specific gender budget even though water insecurity impacts women more.[36] While the government has organised the water sector better over the last few years, especially by bringing parallel departments under one umbrella, gaps exist in analysis, data collection, financing, and opportunities to hone these policies for the future. Some improvements have been made across ministries to address the issue of gender budgeting, collecting disaggregated data, and enhancing financing. Still, better integration of data and analysis across various ministries and departments is needed to get a clearer picture on how gender intersects with different development projects.

Improve Public-Private Partnerships

Water management is a collective action and participation from citizens is a crucial part of the process of conserving natural resources. India is a community-oriented nation that places emphasis on citizens' deliberation and action. An effort that is led by the community can instil a behavioural response and a sense of responsibility. Community efforts can help close gaps in the understanding of the interlinkages between water, climate action in cities, and the role women can play in building long-term water security. Bridging these gaps will require greater cooperation and coordination between research, public policy institutions, and government agencies. The aim is to create a system of evaluation policies that ensure that current actions do not perpetuate other problems in the future. While India has increasingly worked in tandem with other government and non-government agencies to address overarching problems (especially in education, financial literacy and inclusion, technology, and foreign policy), the water sector remains side-lined.

In 2020, under the LiFE (Lifestyle for Environment) mission, NITI Aayog and the Ministry of Environment, Forest and Climate Change, in partnership with the United Nations (UN), World Resources Institute, Centre for Social and Behaviour

Change, and the Bill and Melinda Gates Foundation, issued a global call for climate-friendly solutions in the water, transport, energy, and allied sectors. While such approaches of collecting data and ideas will help encourage wider ways to adopt and implement sustainable practices for communities across India, a similar call can be instituted to collate experiences from within the country with a focus on water solutions.[37] There are examples of large financial institutions, foundations, and non-government organisations supporting the water sector, especially at the grassroots level. Many of these can be scaled-up and replicated across the country, but local municipalities and state governments often lack the knowledge of best practices beyond their immediate regions. Existing programmes such as the Smart Cities Mission or the City Climate Alliance under the National Institute of Urban Affairs, could be starting points to create robust networks for cross-learning.

Modern methods of research play an important role in building an India for the future and bring in expertise on emerging technologies that can aid in solving India's water crisis. However, they cannot be used in place of community-based low-cost techniques, especially in India, where access to modern technologies can be difficult and expensive for citizens and local governments alike. Campaigns like 'Catch the Rain,' which was designed to promote rainwater harvesting, artificial recharge, and prudent water use, have helped refurbish over 600,000 water bodies and structures. Such programmes are undeniable in their success and have the potential for scalability and replication. Sustaining the positive outcomes of government missions and policies in the water sector requires better integration between public and private sector organisations and adopting a multifaceted approach. Experiences from other sectors indicate this possibility.

India's G20 Presidency as Opportunity

Global governance systems are in flux and multilateral institutions are ill-equipped to deal with present realities. The obstacles to better climate action are an important reflection of this situation. However, the need for the integration of women and water, and its impact on economic growth and conflict prevention, is increasingly being accepted globally, with more concerted action on this front. The 2023 UN Water Conference highlighted the role of women in solving the water crisis. The understanding that women's education, health, economic opportunities, and basic dignity of life are integral aspects of a nation's well-

being was reiterated by governments, private sector actors, and citizens alike, who expressed strong commitment to work towards the fulfilment of these goals. By applying a targeted focus, India can smartly and effectively leverage the G20 as an avenue to advocate for women and water as an integrated theme, and perhaps work towards creating consensus in a system that is fragmented on other issues. Similarly, greater stress on the need for gender inclusion in water-related cooperation and policies could build avenues for an interesting exchange of ideas and dialogue.

During the Indonesian G20 presidency, the Women20 engagement group focused on eradicating policy discrimination, supporting women-owned and -managed micro, small, and medium enterprises, empowering girls and women in the rural regions and those with disabilities, and pushing for gender equitable health response. None of this will be possible without addressing the water issue, be it in India, Indonesia, or other growing economies, and by bringing it out of smaller engagement groups, working in silos, to the main tracks. South-South cooperation can offer new avenues to address complex problems such as water, climate change, food insecurity, or migration. The India, Brazil, and South Africa Facility for Poverty and Hunger Alleviation (IBSA Fund), an initiative to enhance South-South cooperation, has benefited many developing countries. For instance, the project to bring solar energy to 25 villages of Guinea Bissau in West Africa allowed locals to attend night school and increased their access to water through solar water pumps, resulting in a 90-percent increase in women's participation in literary courses, and improved sanitation for women and children.[38] The world needs more such success stories to build upon, and a greater focus on 'women and water' is the way forward.

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IX.

The Girl Child at the Centre of Policymaking: Weighing the Successes of the *Ladli Laxmi Yojana* of Madhya Pradesh

Shoba Suri, Oommen C. Kurian, and Sikim Chakraborty

Abstract

THE PREFERENCE FOR SONS in many countries, including India, has led to significantly adverse sex ratios in these geographies. In India, according to the National Family Health Survey of 2019-21, the sex ratio at birth is 929 females per 1,000 males. This article examines the *Ladli Laxmi Yojana* (LLY) programme in the state of Madhya Pradesh that seeks to provide financial assistance to families who raise girl children. Launched in 2007, LLY primarily aims to prevent the incidence of sex-selective abortions, discourage child marriages, and improve the education and health of girl children. This article is based on a literature survey, an analysis of data from government's management information system of the LLY scheme, as well as district-level survey data from successive rounds of the National Family Health Survey. It finds that the LLY has met with success in protecting the bearing and birth of girls, promoting their education, and overall, reducing the skewedness of the country's sex ratio.

Introduction

NOBEL LAUREATE AMARTYA Sen, in 1990, coined the term "missing women" to describe the skewed women-to-men ratio in the developing world.[1] A number of factors can hinder the survival rate of girls, leading to higher mortality rates compared to boys in certain regions or populations.[2] The higher mortality rates of girls reflect gender disparities and inequalities in various aspects of society, including in healthcare, nutrition, and education.[3,4] Consequently, girls become more vulnerable to diseases, which in turn reduces their overall chances of thriving, if at all they survive.[5] Limited educational opportunities also hinder their ability to make informed decisions regarding their own health and to seek appropriate healthcare when needed. Moreover, the preference for sons[a] impacts the survival rate of girls. The resulting gender imbalance contributes, along with other factors, to issues such as child marriage, violence against women, and the trafficking of women and girls.

Addressing these issues requires comprehensive efforts to promote gender equality, eliminate discriminatory practices against women and girls, provide incentives for families to bear and give birth to daughters, improve access to healthcare and education, and empower girls and women. Only then can societies help improve the survival rates and well-being of girls, thereby promoting a more equitable and inclusive future.[6,7]

This study evaluates the *Ladli Laxmi Yojana* (LLY), a cash transfer scheme launched in 2007 in the state of Madhya Pradesh (MP) aimed at preventing the incidence of sex-selective abortions by providing financial assistance to families who bear, give birth to, and raise girl children. It seeks to achieve various objectives, including improving the sex ratio,[b] discouraging child marriages, improving education and health outcomes for the girl child, reducing school dropout rates (DOR) of girl children, and promoting family planning.

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[a] It refers to the preference for male children over female children, which has a significant impact on the sex ratio.

[b] Sex ratio is calculated as number of females per thousand males.

Setting the Context

The Government of India has implemented policies that support conditional cash transfers (CCTs) to promote the health and education of the girl child.[8] The government, at the centre and state levels, has introduced CCT programmes such as the *Beti Bachao Beti Padhao* (save the girl child, educate the girl child) [9] in an effort to provide financial aid to parents of young girls who meet the programme's eligibility criteria.[c,10] Under the scheme, financial assistance is provided to the girl child's family at the time of her birth and upon completion of her education. Another such programme is the *Sukanya Samriddhi Yojana* (welfare scheme for the girl child), a savings scheme launched by the government in 2015 that allows parents to open a savings account in the name of their girl child. The scheme provides a higher rate of interest and tax benefits and aims to encourage parents to save for their daughter's welfare.[11]

The Dhanalakshmi Scheme, meanwhile, launched in 2008 provides cash transfers to families with a girl child upon the fulfilment of certain criteria, such as registration of her birth and ensuring that she receives immunisations.[12] An earlier programme launched in 1997, *Balika Samrudhi Yojana* (financial assistance scheme for girl child), aims to alter unfavourable family and societal attitudes regarding girls.[13] The primary objective of the scheme is to promote the education of girls by providing financial support to families below the poverty line. The scheme supports the education of girls, provides cash benefits based on the birth order of the girl child, and supports her health and nutritional needs.

These schemes have met with success in promoting the birth and education of girls and addressing the issue of skewed sex ratios.[14] However, there is still much work to be done to correct harmful cultural attitudes towards girls from the time they are conceived. Other than the central schemes, state initiatives have been launched with the common aims of improving sex ratios, reducing gender disparities, and promoting girl children's education (see Table 1). Many of these schemes, however, are eventually discontinued due to lack of funds and awareness among the community.

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[c] The girl child should attend the anganwadi centre till age 6 years, be enrolled in government school, and complete her immunisations.

Table 1: State Initiatives for the Girl Child

Scheme	State	Year Launched
Devirupak[15]	Haryana	2002
Balri Rakshak Yojana[16]	Punjab	2005
Bhagyalashmi[17]	Karnataka	2006
Ladli Laxmi Yojana	Madhya Pradesh	2007
Indira Gandhi Balika Suraksha Yojna[18]	Himachal Pradesh	2006
Girl Child Protection[19]	Andhra Pradesh	2008
Beti Hai Anmol[20]	Himachal Pradesh	2010
Kanyashree Scheme[21]	West Bengal	2013
Mukhyamantri Rajshri[22]	Rajasthan	2016-17
Mukhya Mantri Kanya Suraksha Yojana	Bihar	2018
Kunwarbainu Mameru[23]	Gujarat	2022

Source: Authors' own, using various open sources

Global efforts

In different parts of the world, governments have implemented schemes and programmes that seek to provide financial assistance to girl children.

i Bono Juancito Pinto[24]

Peru's cash transfer programme targets impoverished households with children under the age of 14, with particular focus on girls. The programme provides cash transfers to encourage families to invest in their children's education and health.

ii Prospera[25]

Prospera is a conditional cash transfer programme in Mexico that provides financial assistance to low-income families with the aim of promoting the health, nutrition, and education of their children. The programme incentivises families with girls for maintaining school attendance.

iii Child Support Grant[26]

This cash transfer programme in South Africa provides financial assistance to poor households with children, providing them with a monthly grant for every child in the household, with an additional amount given for a girl.

iv The Girl Child Education Fund (GCEF)[27]

The GCEF is a financial support programme aimed at providing education for girls from disadvantaged communities around the world. The fund provides resources to cover expenses such as tuition, books, uniforms, and other educational materials for girls who may not have access to such resources. The goal of the programme is to empower girls through education and help break the cycle of poverty and gender inequality.

v Bolsa Familia[28]

Bolsa Familia is a CCT programme in Brazil, launched in 2003, aimed at reducing poverty and promoting education among the country's poor families. The scheme provides financial assistance to the girl child's family on the condition that she attends school regularly and undergoes regular health checkups.

vi Child Benefit Scheme[29]

Ireland's Child Benefit Scheme provides financial assistance to families with children. The scheme aims to alleviate the financial burden of families and ensure that children have access to basic necessities such as food, clothing, and education.

vii Care for Girls[30]

In China, the Care for Girls scheme is a CCT programme implemented by the government in 2000 to address the issue of gender imbalance caused by the social preference for sons, and to promote gender equality.

The LLY: Components and the Cash Transfer Schedule

Under the LLY scheme,[31] the state government provides an assurance certificate in the name of the girl child upon successful registration and verification of her birth. The conditional benefits start building up from the time of birth and mature when the girl is 21 years of age, has completed grade 12, and has not been married before the age of 18 years. The scheme provides for a total of INR 118,000 to the girl child at the age of 21 years.[32] The monetary benefits are made directly to the girl child's bank account (see Table 2).

Table 2: LLY Cash Transfer Schedule

Payment Milestones	Amount Received (INR)
Class VI	2,000
Class IX	4,000
Class XI	6,000
Class XII	6,000
At 21 years of age if unmarried at 18	100,000

Source: Ladli Laxmi Yojana website[33]

According to the LLY 2.0,[d] girls will be given an additional incentive of INR 25,000 in two equal installments in the first and last year of the course after taking admission in a graduate or professional course (with a minimum duration of two years) after class 12th; this brings the total amount to INR 143,000.[34]

Assessment of the LLY and similar efforts

The LLY has been widely appreciated for its efforts to promote the welfare of girl children and reduce gender discrimination. The scheme has been successful in encouraging families to provide equal opportunities and support to their girl children, and has helped reduce the gender gap in education and other areas.[35,36,37] A 2019 study on the LLY in MP's Dhar district found that the enrolment of girl children

[d] Ladli Laxmi Yojana 2.0 is designed to help girls for admission to college and assist in obtaining higher education. The Ladli Laxmi Yojana catered to school education.

in schools had improved along with their rates of survival and health outcomes.[38] A 2018 survey on the impact of the LLY in Goa has found that the programme improved the status of the girl child and the sex ratio in the state.[39] Another case study on the LLY in Goa also highlighted its potential in reducing sex-selective abortions and in developing girls' confidence towards education.[40]

Meanwhile, A 2018 dissertation on the spillover effect of the LLY in MP and five other states including Chhattisgarh, Jharkhand, Orissa, Rajasthan, and Uttarakhand, found an increase in registration of girl children at birth, and in their schooling and education.[41] An impact analysis of the scheme in Seoni district, Madhya Pradesh noted changes in the community with improved educational status of the girl child and decline in child marriages.[42] In 2015, a study on CCT for girls in India demonstrated how financial incentives help dissolve existing gender barriers and parental perceptions of daughters as "liabilities."[43] A more recent study on the LLY in MP found encouraging response on the education of girl children and gender equality among 90 percent of the districts studied.[44]

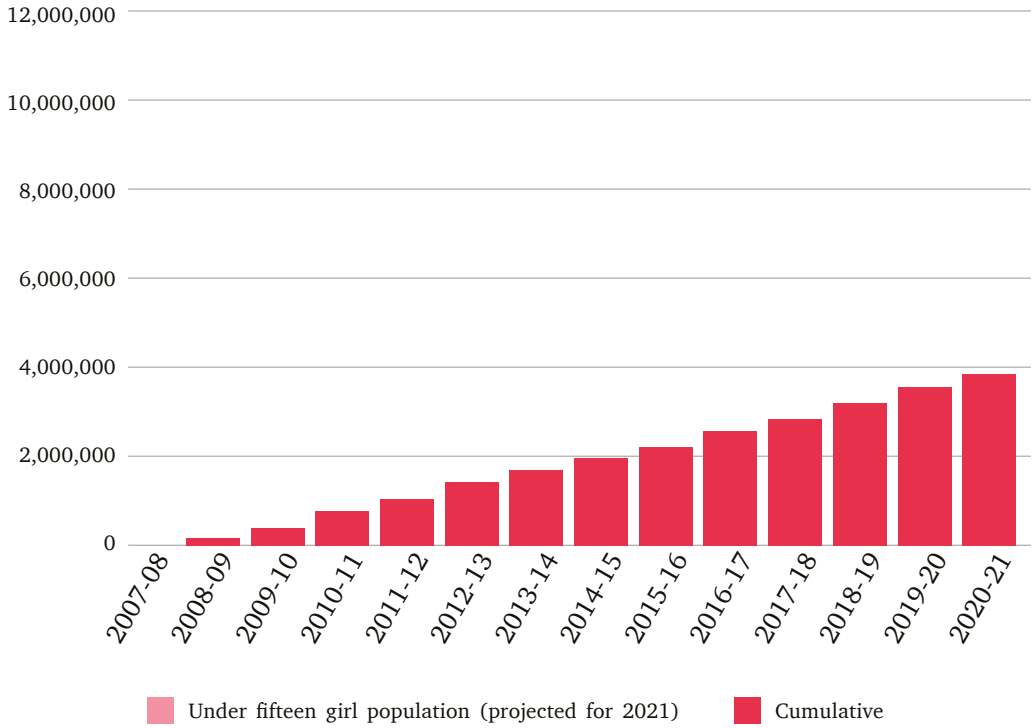
What all these studies have shown is that providing cash incentives through CCT programmes for girls can effect positive changes in rural social contexts. However, a hospital-based study in 2014 on health-seeking behaviour and awareness of maternal and child health practices in rural MP found that more than 80 percent of their respondents were unaware of the LLY.[45] A 2012 desk review of girl child promotion schemes in India also revealed certain drawbacks in the implementation of LLY due to its lengthy processes and delays in registration, particularly in MP.[46] Earlier, in 2010, an evaluation[47] of special financial incentive schemes in India pointed to limitations in the LLY, including delays in registration and disbursement; the analysis also noted the long enrolment process, and suggested measures like involving the Panchayati Raj institutions and improving awareness around the scheme through information, education, and communication campaigns.

Key Achievements

Over the period 2011-36, India's population is expected to increase by 311 million, of which five states including Madhya Pradesh alone will account for 170 million and 50 percent of India's population growth during the same period.[48] How many of these children are girls would depend on overcoming the preference for sons in the state. The scheme had gotten off to a lukewarm start in terms of the number of registrations, with only 58,502 girls getting enrolled during the year of its implementation in 2007-08. However, the annual number of registrations under the scheme has significantly improved since 2015 to an additional 3,00,000 per year and has now stabilised around that number.[49]

By design, the LLY has a 22-year programme cycle, of which 15 years have been completed. Figure 1 explores year-wise registrations of the LLY from inception till 2020-21, where latest yearly data is available. The cumulative registrations are shown as a percentage of the total number of under-15 girls in the state, and till date about one-third of all the girls in the zero to 14 age bracket is covered under the scheme. The number of annual registrations accelerated at a remarkable pace in the initial years, followed by a slowdown in registrations after five years of steady increase. This could be attributed to a lack of awareness in the community, as certain field level studies like Tiwari et al (2014) from the same period have reported.[50] Furthermore, the initial enthusiasm of the government machinery waned, though temporarily; the annual registration numbers picked up pace around 2015. A recent review of the LLY based on a primary survey of 10 districts of MP has shown steep levels of enrolment (89.67 percent) among eligible girls.[51] The study also found that the girl students enrolled in the scheme are often encouraged by parents to complete their education prior to considering marriage.

Figure 1: Enrolment of LLY as % of under-15 Population (2007-2021)



Source: Compiled by the authors from the CM Dashboard, Madhya Pradesh [52]

Table 2 explores the financial disbursements under the scheme. Given the considerable time gap between the year of registration and the first payment to the enrolees of the scheme at grade six when they are 11-12 years old, the first set of disbursements came in the year 2016. As the enrolees progressed in age, they received disbursements in higher grades as well, with each girl student in grade six receiving INR 2,000 per person. At the same time, girl students in grade nine receive INR 4,000 per person. A recent review of the scheme by the government of MP and Unicef found that LLY beneficiaries across districts verified that the disbursement of the scholarship funds are made in a timely manner via e-payments to the beneficiary accounts.[53]

Table 3: Amounts Disbursed Under the LLY for Schoolgirls in Different Grades (INR Cr)

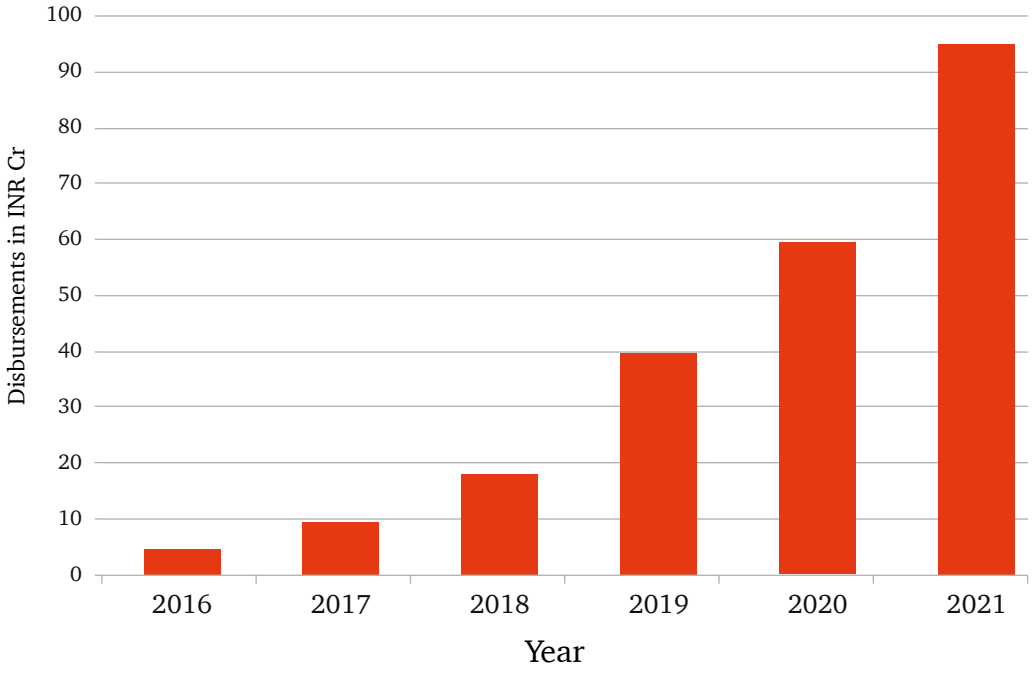
Year	6th Grade	9th Grade	11th Grade	12th Grade
2016	4.5	0.03		
2017	9.59	0.02		
2018	17.78	0.45	0.00	
2019	31.24	8.41	0.01	0.01
2020	36.06	22.62	0.78	0.02
2021	44.26	38.28	11.45	1.00
Total *	**145.66 Cr**	**72.18 Cr**	**13.1 Cr**	**1.37 Cr**

** The total disbursements include those given in 2022, though incomplete*

Source: Authors' own, using data from the CM Dashboard, Madhya Pradesh[54]

The disbursements to the higher grades (11th and 12th) have been significantly low given that the average age of the enrolee population remains low. However, total disbursements under the scheme have shown rapid growth from under INR 50 million in 2016 to a significantly high INR 950 million in 2021. The rapid expansion of financial disbursements under the scheme is explored in Figure 2. As the scheme population matures at 21 years of age and the final payout of INR 100,000 starts getting disbursed by the year 2025-26, the size and composition of the overall financial disbursements will show a significant transformation.

Figure 2: Total Disbursements Under LLY, by Year



Source: Authors' own, using data from the CM Dashboard, Madhya Pradesh[55]

From disbursing money to just 22,576 girl children in MP in 2016, the LLY has grown rapidly and reached 337,864 girls in 2021, even during the pandemic when they perhaps needed it most. It is hoped that when the scheme completes its first cycle in 2025-26, all the girl children who have till date received payments under the scheme remain eligible for the final disbursement (see Table 2), that is, unmarried and attending school/college.

A Rapid Assessment of the Impact of LLY

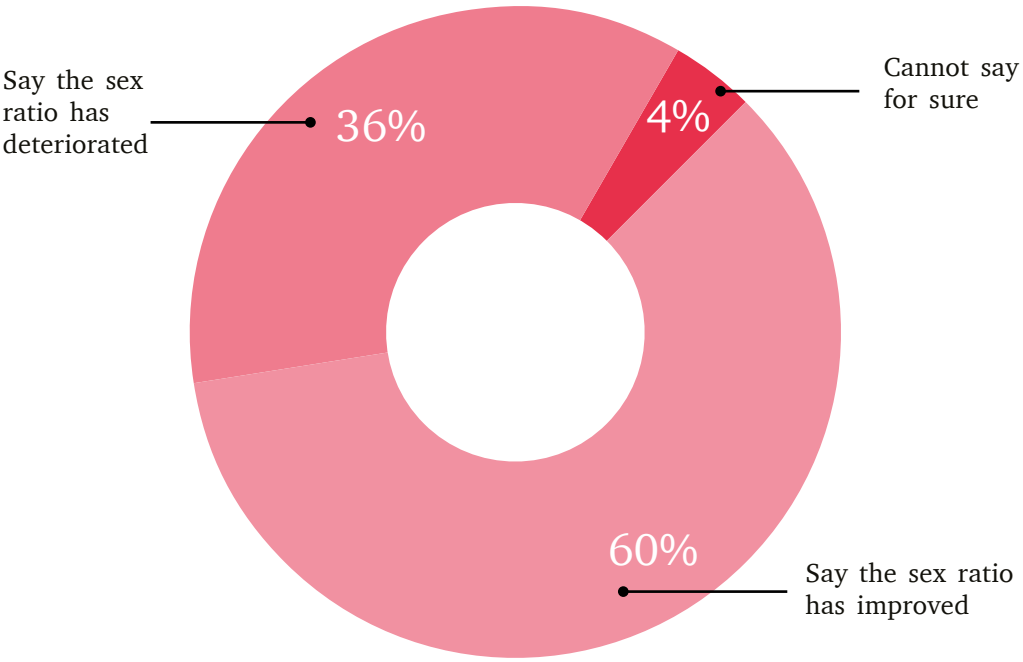
Using data from multiple sources, key indicators were analysed to assess the effectiveness of the scheme. Statistics on child sex ratio, teenage pregnancy, and child marriage from the National Family Health Survey (NFHS) were obtained and used for the analysis.[56,57] To gauge the impact of the scheme on education, drop-out rates, data from the Unified District Information System for Education Plus dashboard have been assessed.[58]

The metrics offer valuable insights into areas such as child welfare, adolescent reproductive health, and educational attainment. This analysis hopes to shed light on the scheme's impact.

Child sex ratio, teenage pregnancies, and child marriage

At present, MP has a child sex ratio of 956, higher than the national average of 929.[59] Additionally, recent data from the last two rounds of the NFHS reveal that the child sex ratio has improved in 27 districts across MP (see Figure 4). There has been significant improvement in districts like Khandwa, Bhopal, Seoni, Tikamgar, and Mandsaur; meanwhile, a degree of regression was noted in Satna, Katni, Datia, Guna, and Raisen.

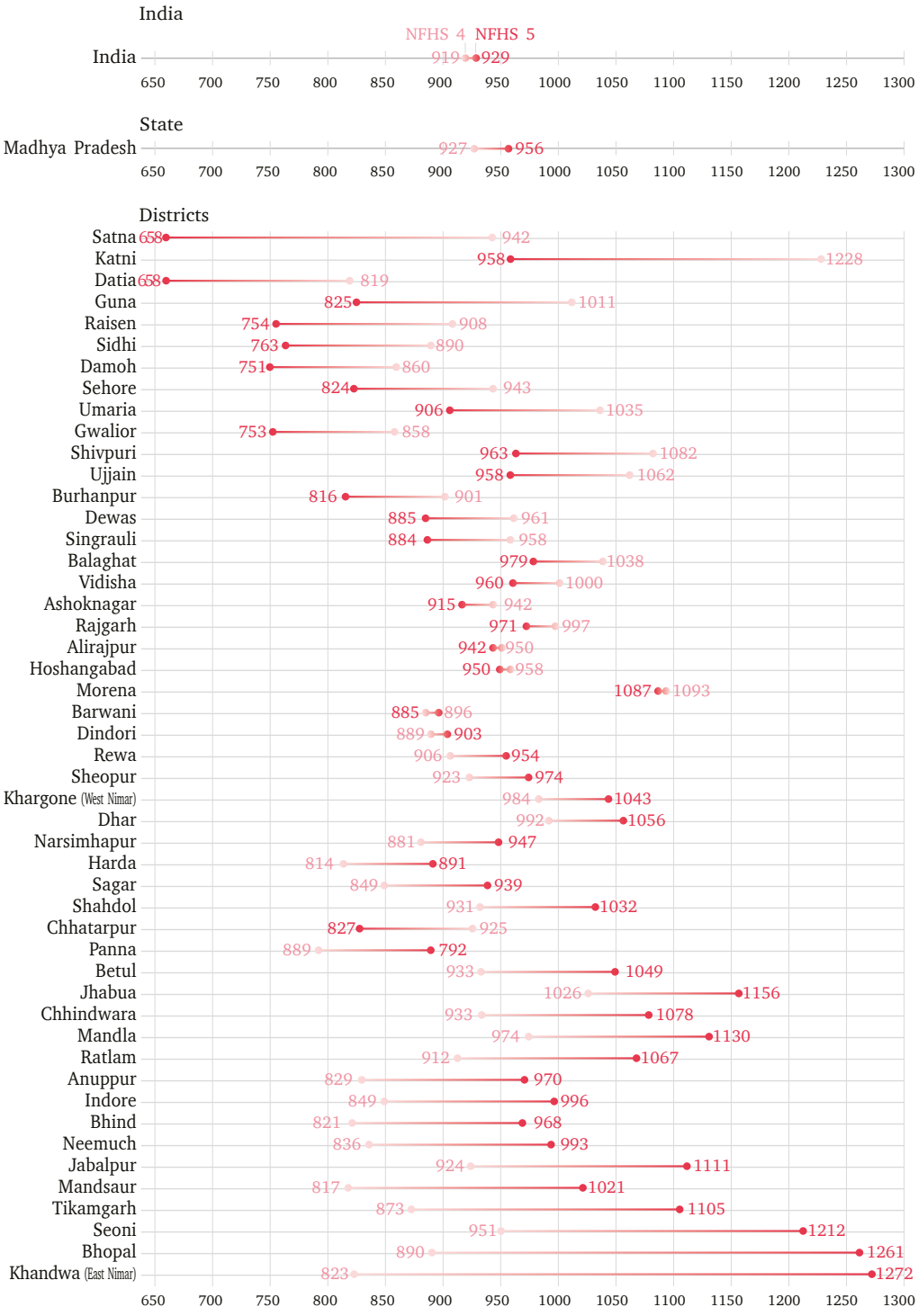
Figure 3. Perceptions of the Sex Ratio



Source: Study of the Ladli Laxmi Yojana Social Protection Scheme, Department of Women and Child Development, Government of Madhya Pradesh, 2023.

The LLY effectively encourages parents to delay their daughters' marriage and prioritise their education. NFHS 4 and NFHS 5 data show that teenage pregnancies have decreased in 82 percent of the districts in MP between 2015-16 and 2019-21. The survey data further highlights that there has been a significant drop in the percentage of teenage pregnancies and first-time motherhood among girls aged 15-19, declining from 7.5 percent to 5.2 percent (see Figure 5). This suggests that efforts to raise awareness about the dangers of teenage pregnancy and to enhance access to family planning services are coming to fruition, although the achievements vary across districts.

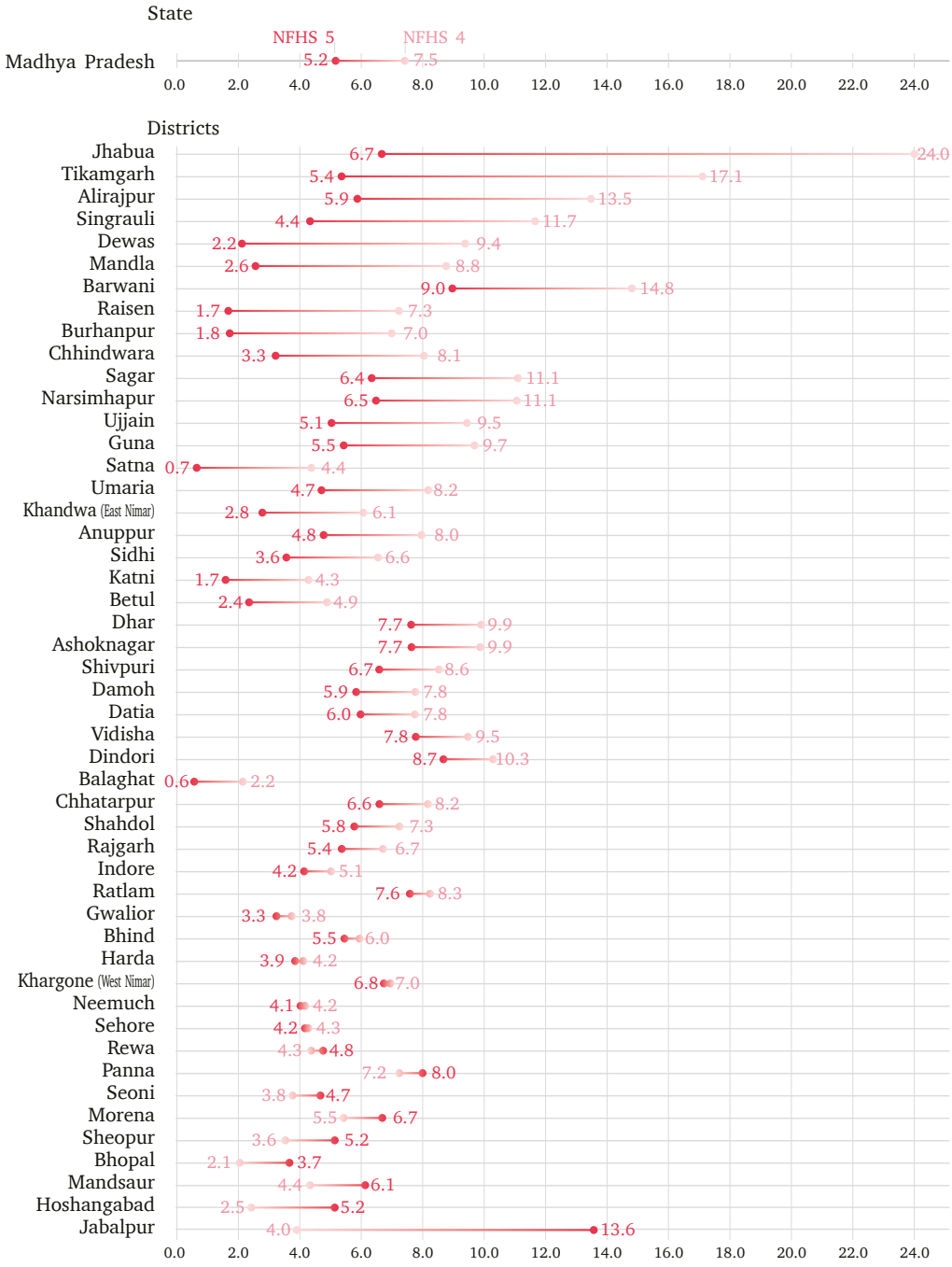
Figure 4: Changes in Sex Ratio at Birth for Children Born in the Last Five Years in MP districts (2015-16 & 2019-21)



Data Source: National Family Health Survey 4 (2015-16) and 5 (2019-21)[60-61]

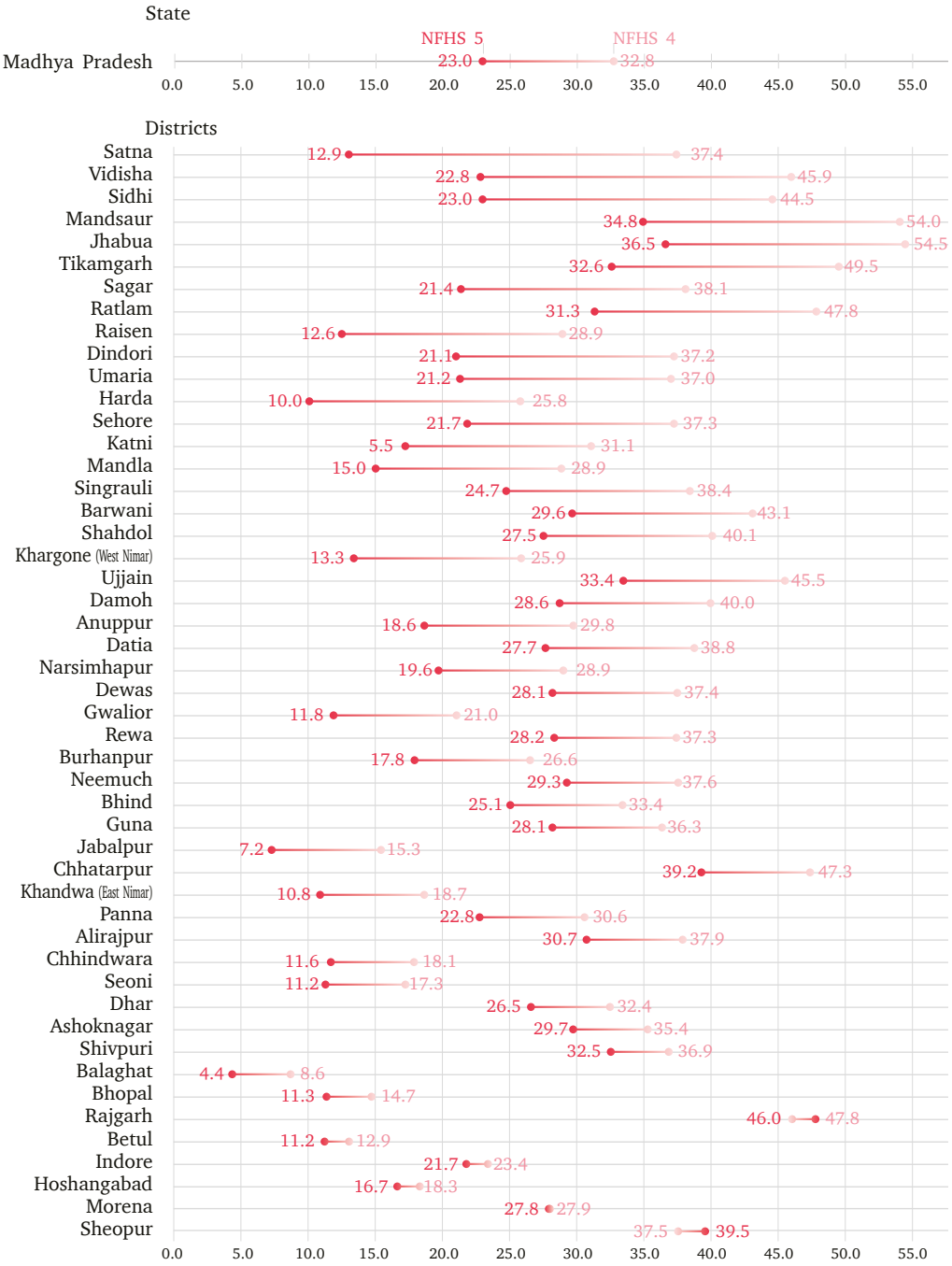
To be sure, MP continues to face the challenge of having a high incidence of reported child marriages, accounting for 50 percent of all cases in 2015-16.[62] Since then, the state has recorded a decrease in the prevalence of such marriages, with an approximate drop of 10 percentage points from around 33 percent to 23 percent between 2015-16 and 2019-21 (see Figure 6). This decrease was observed across all districts, indicating the success of education and awareness campaigns, and other initiatives.

Figure 5. Women 15-19 Years Who Were Already Mothers or Pregnant at the Time of the Survey (%) in MP districts (2015-16 to 2019-21)



Data Source: National Family Health Survey 4 (2015-16) and 5 (2019-21)[63-64]

Figure 6. Women 20-24 Years Married Before Age 18 (%) in MP Districts (2015-16 to 2019-21)



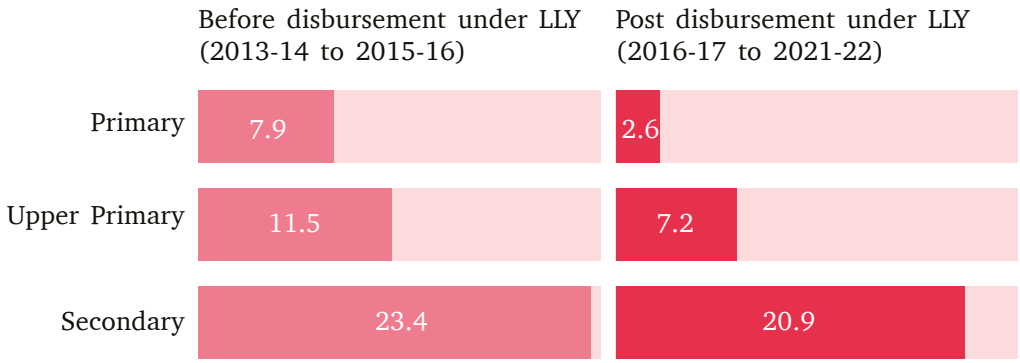
Data Source: National Family Health Survey 4 (2015-16) and 5 (2019-21)[65-66]

Dropout rates

The LLY offers various benefits to girls, including monetary incentives at different stages of their life, such as birth, school admission, and upon reaching specific educational milestones (including completion of grades six, nine, 11, and 12). Since the initiation of disbursements under the scheme in 2016, there is indicative evidence that suggests a decline in the dropout rates (DOR) of girls across different levels of school education in MP (see Figure 7). Specifically, at the primary level, the mean DOR has decreased from 7.9 percent to 2.6 percent (*t: 3.77, p-value: 0.035*), which indicates a significant improvement.[e] Similarly, at the upper primary level, the DOR has decreased from 11.5 percent to 7.2 percent (*t: 3.51, p-value: 0.027*), although the change is less significant than at the primary level.

A decline is also observed, though not statistically significant (*t: 0.58, p-value: 0.5*) at the secondary level of education, where the DOR has decreased from 23.4 percent to 20.9 percent. This suggests an improvement in terms of the number of girls who have continued their education to the secondary level, with positive long-term implications for their future. Overall, the decline in DOR of girls across different levels of school education in MP is a positive trend, as it suggests that more girls are staying in school. It may be attributed to various initiatives, including the LLY.

Figure 7. Mean DOR of Girls by Levels of School Education in MP (%)



Data Source: UDISE+ dashboard

[e] The authors performed a t-test on DORs prior to and following the initiation of disbursement from LLY. If the p-value derived from the t-test is below 0.05, the outcome is deemed statistically significant, whereas a p-value exceeding 0.05 renders the result as not significant.

Overall, though the absence of consistent data on key outcome variables prevents the conduct of a causal analysis, the indicative evidence suggests that MP's LLY has yielded favourable outcomes on social indicators associated with gender equality, adolescent reproductive health, and education. The findings are in line with the recent review of LLY across 10 districts of the state, which found consistently high levels of awareness of the scheme, and the need to educate the girl children.[67]

By offering financial aid to families for their daughters' education and marriage, the scheme has played a role in reducing instances of teenage pregnancies, curbing child marriages, and mitigating the DOR of girls across various educational levels. Nevertheless, it is important to acknowledge that these issues are influenced by multiple contextual factors, necessitating continuous evaluation and refinement of the programme to effectively address the challenges.

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X.

Caprine Custodians: Steering India's Alternative Community Livestock Extension Model Through the *Pashu Sakhis*

Arundhatie Biswas Kundal

Abstract

INDIA'S VISION of a women-led development agenda has provoked interest in academia. Such reimagining of gender development is evident in the country's livestock policy as well, a space earlier dominated by men. One such initiative, the *Pashu Sakhi* programme (Community Animal Health Service Providers) is enabling rural women in leadership roles. This has resulted in rich benefits for the women as custodians of small ruminants. This chapter examines the *Pashu Sakhi* programme with the use of qualitative data from existing case studies. It offers a conceptual framework by using an intersectional approach to analyse available data of interdependent social variables of grassroots development, such as leadership in enterprise, ownership, control of resources, and decision-making. The study offers recommendations for policymaking that could situate rural women's leadership as an integral part of India's vision of a women-led development agenda for the G20.

Introduction

MORE THAN 75 percent of the world's extreme poor live in rural areas, with rural women comprising two-thirds of low-income livestock keepers.[1] India has the world's largest share in livestock production systems, with a population of 535.78 million,[2] which includes buffaloes, sheep, goats, pigs, poultry and other livestock species, engaging about 8 percent of the agriculture labour force of which over 70 percent are women.[3] Livestock is also one of the most rapidly expanding sectors of India's rural economy, accounting for 5 percent of national income and 28 percent the agricultural GDP in 2018-2019.[4]

Despite women's crucial role as producers of animal-based food products,[5,6] they remain the invisible custodians of small ruminants. They are often relegated to animal farm activities such as fodder collection, feeding, watering, health care, milking, and household-level processing.[7] They have limited access to land ownership to raise their animals on common-property resources, and with constrained mobility, they restrict themselves to indigenous breeds that are easier to maintain; they also often have no formal ownership of their livestock, lack access to markets and capital, and do not have proper veterinarian support.[8]

Women as livestock owners are often prone to losing their livestock to preventable diseases. They have little negotiating power in a largely unorganised market system and lack adequate knowledge of animal health. As the undercurrents of inflation, climate change, food insecurity, and health crises hit livestock value chains, it is imperative that gender concerns occupy a central role in livestock development policies. Acknowledging these factors that have historically hindered women's leadership role in animal health extension programmes, this essay showcases India's Community Animal Health Service Providers, the *Pashu Sakhis*, as a women-driven development model.

The *Pashu Sakhi* Model: A Review

The *Pashu Sakhis* programme was strategised in 2012[a] as a programmatic pillar of the Farm Livelihoods intervention under the Deendayal Antyodaya Yojana-National Rural Livelihoods Mission (DAY-NRLM) of the Ministry of Rural Development. Its mandated focus was on grassroots capacity-building and training of livestock Community Resource Persons (CRPs)[9] or Community Animal Extension Service Providers (CASPs). Today the *Pashu Sakhi* model is being implemented under the SRLMs (State Rural Livelihoods Mission).[10] Jharkhand was one of the first states in India to implement the programme, and it now boasts over 1,000 Pashu Sakhis certified by the Agricultural Skill Council of India (ASCI).[11] At present, *Pashu Sakhis* operate in most states across the country (Table 1), "scaling new dimensions of development in villages" as Prime Minister Narendra Modi remarked earlier this year.[12]

Methodology

The dearth of academic literature on how extension programs influence gender dynamics in livestock production calls for the creation of a conceptual framework to improve the understanding of underlying gender arrangements and identify gaps and challenges. There is an acute lack of adequate pan-India data on the program, with only a handful of anecdotal references in the public domain.

This chapter draws inferences from: a) the *Pashu Sakhi* model in JOHAR (Jharkhand Opportunities for Harnessing Rural Growth) implemented by the Rural Development Department of Jharkhand and funded by the World Bank, considered to be the country's first accredited and potentially the most extensive and sustainable model; b) and a few other case studies from a joint initiative of the National Dairy Development Board (NDBB) and the Food and Agriculture Organization (FAO) for *Pashu Sakhis* in Rajasthan[13] and the Maharashtra State Rural Livelihood Mission (MSRLM).[14] All these programmes concentrate on small ruminants, especially goats.

Initiatives like these are particularly important for regions like Jharkhand, where only one-third of the population are engaged in economic activity.[15] There are also issues of weak institutional capacity, poor infrastructure, and lack of rural opportunities that constrain growth and development.[16] At present, India has an

acute shortage of around 65,000 veterinarians of the required 120,000.[17] However, there is potential for skills enhancement in farmers and community animal health service providers to enable effective support services that were previously not available.[18] Incidentally, Rajasthan has the largest goat population in the country at 20.84 million in 2019,[19] and the rearing of small ruminants remains a major source of livelihood in the rural areas.[20]

In Maharashtra, livestock farming is a key source of livelihood for some of the most marginalised communities particularly in its remote, drought-affected districts with little access to veterinarian care. This section examines these case studies with the aim of formulating a robust framework for women's empowerment in livestock policies.

Table 1 highlights that the states of Jharkhand, Maharashtra, and Rajasthan have gained in terms of goat population. Evidence from the Maharashtra State Rural Livelihood Mission (MSRLM), Mahila Arthik Vikas Mahamandal (MAVIM), and The Goat Trust states that, in just 12 months of rolling out the *Pashu Sakhi* program in Gondia district, goat mortality dropped from 22 percent to 6 percent, which saved nearly 8,600 goats every year.[21] Official records from Jharkhand reported that the *Pashu Sakhis* in Jharkhand have helped decrease goat mortalities by 30 percent since the program was rolled out.[22] In Rajasthan, goat mortality reduced from 25-30 percent to only 5-6 percent[23] after the program was launched.

Table 1. Pashu Sakhis and Gain in Goat Populations, by State

	State	Pashu Sakhis	Goat population in million, 2012	Goat population in million, 2019	% change
	Total	60,988			
1	Andaman & Nicobar	20			
2	Andhra Pradesh	3,705			
3	Arunachal Pradesh	13			
4	Assam	1,912			
5	Bihar	1,170			
6	Chhatisgarh	4,562			
7	Gujarat	5,556			
8	Goa	0			
9	Haryana	285			
10	Himachal Pradesh	913			
11	Jammu and Kashmir	450			
12	Jharkhand	3,950	6.58	9.12	38.59%
13	Karnataka	5,421			
14	Kerala	638			
15	Ladakh	0			
16	Lakshadeep	0			
17	Madhya Pradesh	2,087			
18	Maharashtra	3,895	8.44	10.60	25.72
19	Manipur	60			
20	Meghalaya	229			
21	Mizoram	457			
22	Nagaland	431			
23	Odisha	1,966			
24	Puducherry	60			
25	Punjab	407			
26	Rajasthan	3,634	20.67	20.84	-3.81
27	Sikkim	186			
28	Tamil Nadu	8,351			
29	Telangana	2,000			
30	Tripura	392			
31	Uttar Pradesh	1,204			
32	Uttarakhand	10			
33	West Bengal	7,024			

Sources: DAY-NRML (2022)[a] and 20th Livestock Census (2019)[24]

[a] Data collected during author's own consultation with NRML, Government of India, March 2023.

Key Takeaways

The *Pashu Sakhi* programme reinforces existing research which indicates that women veterinarians and community animal health caregivers are necessary to support women in livestock production[25] and could impact the livestock sector in achieving the Sustainable Development Goals.[26] Previous findings[27] have already established links between gender roles and animal health, estimating that 98.6 percent of rural women were caring for pregnant animals, 52 percent were primary caregivers for treatment, 55.30 percent administered de-worming methods, and 30.60 percent were involved in the vaccination of their livestock. These indicators can be instrumental in causing policy shifts, from facilitating entrepreneurship and affordability in cattle-breeding infrastructure to offering door-to-door extension services for livestock owners. Over 60,000 *Pashu Sakhis* operate across states in India and have been instrumental in providing door-to-door veterinary services for their communities, raising awareness about vaccinations and timely de-worming, and advocating for nutrient-feed mixtures.

Veterinary care among small livestock farmers: *Pashu Sakhis* from the JOHAR initiative reported that, after training, there was increased awareness in their communities about timely vaccinations as well as the development of new skills, including deworming, teeth clipping, castration, feed supplements, and mineral mixtures.

Animal hygiene and infrastructure: With the aid of *Pashu Sakhis*, livestock farmers have adopted new practices such as constructing sheds to provide clean and separate spaces for their livestock. The farmers acknowledged their enhanced awareness and adoption of practising proper feed, mineral mixtures, and azolla supplements, resulting in a significant reduction in animal mortality and large improvements in animal growth.

Financial awareness and the economic importance of livestock: The incomes from providing animal care services and rearing animals also contribute to the economic well-being of the *Pashu Sakhis*. Through their self-help groups and marketing committees, they are equipped with information about current market rates, negotiation skills, and trading animals to ensure fair price, such as through the use of electronic weighing scales. Livestock rearing is also more economically rewarding and less labour-intensive than other available local opportunities. Many

of them reported annual incomes between INR 18,000 (US$240) and INR 20,000 (US$267) from animal rearing and about INR 8,500 (US$113) to INR 12,000 (US$160) from providing their services.[28] Table 2 illustrates the income raised by the *Pashu Sakhis* by offering door-to-door animal health services.

Table 2. Economic Gains for Livestock Farmers from the *Pashu Sakhi* Model, Jharkhand

	Indicator	Changes
1.	Increase in herd size	From 1-2 goats to herd of 12-45 goats
2.	Additional Income from pig rearing	Rs. 45,000 (USD 600)
3.	Reduction in marketing time for goats and pigs	From 12 months to 6 months
4.	Enhanced survival	Almost 100 percent survival rates
5.	Income enhancement from goat rearing	From Rs.20,000 (USD267) to Rs.50,000 (USD667)
6.	New crops for animal feed	Azolla, maize, radish
7.	Rearing goats for investments in daughter's education	From 3 goats to 47 goats

Source: Anish Kumar et al.[29]

Table 3 illustrates how the *Pashu Sakhis* benefit from providing other services as well such as selling feed mixtures, trading, and expanding their livestock. Goats are now popularly called 'ATMs' (any time machines) as they provide their owners with fair price and quick returns.

Table 3. Pashu Sakhi Incomes from Sales of Animal Feeds and Other Services

Particulars	Feed Mix	Pashu Chhat	Masala Gola	De-Worming	Total
Income (per annum	2,400	1,200	3,000	3,600	10,200

Activity	Income (per annum in INR)
Helped goat rearers in selling at markets	6,000
Kid Nursery	18,000
Sold 10 Kids, 3 Goats in a year	80,000
Total Income	104,000/

Source: Adapted from Ministry of Rural Development, DAY NRLM, GoI, Journey Towards Success: Voices from Grassroots, 2018 [30]

Utilisation of social media platforms: *Pashu Sakhis* from Jharkhand employ platforms such as WhatsApp for documentation, emergency consultations, and reporting their services to veterinary hospitals. They also often use smartphones to share their stories to generate peer support.

Building a pipeline of *Atmanirbhar* Livestock Caregivers: *Pashu Sakhis* engage in public speaking and interact with clients,[31] contributing to enhanced self-worth and increased social capital[32] among the women, who are affectionately called "Doctor Didi". Such creation of social capital is a key livelihood intervention strategy of the DAY-NRLM.[33]

Box 1. Case Studies

Pashu Sakhi Fardeena Ekka from East Singhbhum, Manoharpur, in the eastern Indian state of Jharkhand, charges INR 10 as her visiting fees, and provides medicines and injections at extra cost. She makes an independent living for herself by attending to an average 18–20 animals and simultaneously earns the respect of her community as "Doctor Didi".

Many such Doctor Didis are leading this movement in other parts of the country. *Pashu Sakhi,* Beela from Rajasthan vaccinated more than 125 goats between 2012-2014 alone. She motivates members of her Self-Help Group (SHG) to have their animals insured and also facilitates loans to help people purchase more livestock. For her part, *Pashu Sakhi* Ranjana Tai from Maharashtra is a former daily wage worker who is now a master trainer and has secured her financial status and the education of her children and commands respect in her community.

Source: Author's own, adapted from various case studies[34]

Gaps

Research on gender and ruminant livestock is limited, and there is a lack of gender-disaggregated data on work sharing, access to resources, and benefits.[35] The success stories emerging from this programme will similarly remain outside the domain of academic introspection if efforts are not made to collect gender-disaggregated data on a nation-wide scale towards better integration of gender concerns throughout the livestock value chain. Pre-assessment gender analysis of the livestock sector is critical to determine how long-standing gender norms shape the ways in which livestock are managed and their benefits shared among household members, often in ways that disadvantage women and girls.[36] The programme fails to identify whether women gaining control over livestock products and household coping strategies has had a positive impact on overall household wellbeing, particularly in nutrition.[37,38]

There is little documentation on how women are utilising digital platforms such as *Pashuhaat* and apps such as *Bakrimitra*. There is also a gap in understanding whether manure and forage management helps minimise methane emissions and mitigate climate change. Additionally, many *Pashu Sakhis* have reported that they are concerned that an incorrect diagnosis on an animal and its subsequent death might erode their respect within the community. There is also sparse information about the storage of vaccines as many service providers may not have access to refrigeration. There is also no specific data that underscores gender activities in staffing, implementation and capacity building or in market assessments.

By identifying key points of intersectionality between gender dimensions in livestock extension programs, Table 4 offers policymakers and practitioners with an intersectional conceptual framework to analyse data, especially in the absence of sufficient quantitative data. Adopting interdependent domains from the Women's Empowerment in Livestock Index (WELI)[39] and the Women's Empowerment in Agriculture Index (WEAI),[40] quantitative scores could be determined from a set of six to ten questions to indicate adequacy thresholds.

Table 4. Framework for Intersectional Dimensions in Data Analysis

Dimension	Indicator	Topics covered by questions contributing to indicator (components)	Indicator adequacy threshold (minimum number of questions achieved, e.g., 0/10, 2/10)
1. Decisions about livestock production	a. Inputs on productive decisions b. Autonomy in pursuing the role of CASP (Community Animal Care Serive Provider) in their communities	Decisions on vaccinations, livestock species, and breeds, including poultry Responsibility for animal health and safety management	Somewhat indicative

2. Access and control over resources	a. Ownership and Control over livestock assets	Decisions regarding purchase and sale	Insufficient data
	b. Ownership and control over land assets	Access to community grazing fields	Insufficient data
	c. Access to credit for livestock expansion	Loan recipient within households	
3. Access to markets and e-commerce	a. Access to membership in local trading associations	Ability to negotiate fair farm-trade prices for livestock sale	Indicative
	b. Use of e-markets	Information and use of digital apps	
4. Access to clean water, electricity, and animal feed	a. Provision for easy and affordable supply of water for animals	Decisions on purchasing animal feed and paying consumption energy bills	Unavailable data
	b. Autonomy to use electrical appliances for CASPs to store vaccines	Responsibility to supply first aid and ready-to-use vaccines	Fulfilled
5. Decisions related to food security, nutrition, and safety	a. Inputs in nutrition decisions	Quality and quantity of food consumed	Not indicative
	b. Decisions about women's health measures in livestock farms	Access to healthcare for transmitted diseases in animals	Not indicative

6. Control and use of income	a. Control over livestock income b. Control over non-farm income for (CASPs)	Decisions about the use of income from farm-based activities Decisions and control over income generated from animal health services	Most reflected in examined case studies
7. Generating social capital	a. Improved self-esteem	Confidence in dealing with clients/trade	Fulfilled
8. National livestock policies	a. Participatory role of women in policy		
9. Extent and control over worktime	a. Total workload	Amount of time allocated for livestock extension actives and domestic tasks Child-care facilities	Not indicative

Source: Author's own, adapted from WELI and WEAI; indicator thresholders stated here are illustrative examples.

Recommendations

Current empirical evidence examines women's time allocation, split across paid labour, decision-making roles on assimilating new technology and improved feed strategies, and their household roles, along with appropriate child- and elderly-care facilities. Policies should include safeguarding the *Pashu Sakhis* and livestock keepers, who are exposed to health risks from heightened exposure to zoonotic diseases. Case studies have also indicated that women may feel threatened in the event of an animal's death following its treatment; therefore, adequate measures should be put in place to provide the women with adequate protection and aid

them in registering complaints. Additionally, providing women with access to clean water and energy, especially to store their vaccines, is vital for the sustainability of the programme.

It is essential that social capital is empirically well documented, as it stands out as a linear empowerment outcome of the programme. The livestock sector also needs to be allotted more than the current 12 percent of total public expenditure on agriculture and allied sectors, which is disproportionately lesser than its contribution to agricultural GDP.[41]

Research and development projects should catalyse the collection and analysis of data to generate relevant information on women in the livestock sector. For example, the Kisan Credit Card Scheme for livestock owners is bereft of gender-disaggregated data.[42] India's national livestock policies are concentrated on dairying and bigger cattle and needs to accommodate small livestock species such as goats. Creating a district-wise database for *Pashu Sakhis* as well as for researchers and innovators to participate in livestock policy also needs to be explored.

Studies from Sub-Saharan Africa (Assan 2021)[43] and Nepal (Ludgate and Gangga, 2020)[44] have pointed out the beneficial role of community livestock service providers which can provide an impetus to engage in future development partnerships within the Global South. Women from the Global South in the livestock sector who depend on mixed rainfed production will remain vulnerable unless proper risk and coping mechanisms—for example, those relating to market volatility, pandemics, and transboundary diseases such as the Peste des Petits Ruminants (PPR)—are not countered through means such as access to vaccinations. A Common Livestock Health Dashboard can be established to monitor outbreaks and ensure vaccinations. Gender-related budget allocations in development co-operation that target women in animal health extension programmes will then be able to create pathways to promote women's leadership in creating resilient and sustainable ecosystems.

Conclusion

The *Pashu Sakhi* model has the potential to emerge as an innovative tool to promote leadership roles among rural women by addressing gendered realities that obstruct their participation in the economy. One of the significant contributions of the model has been the building of social capital and self-esteem among women. However, the model has gaps that can only be bridged by incorporating critical areas into the programme.

Conceptual frameworks to promote research at the intersections of gender, livestock production, asset ownership, nutrition and food security, climate change, and economic downturns are essential to the design of national livestock policies. Gender-differentiated data on a national scale needs to be generated and made accessible for policymakers and academics alike to develop and assess evidence-based analyses as well as to track and monitor progress. If the *Pashu Sakhi* model is able to capture some of these indicators, it has the potential to become a significant grassroots women's leadership programme that highlights social capital and could be a key determinant of women's empowerment in the rural regions.

Annexure

Roles and Responsibilities

Providing last-mile coverage, affordable door-to-door animal health services, first aid, deworming, ethno-veterinary treatment, awareness about vaccinations health management of young animals, shed infrastructure, interfacing with livestock departments.

Specific interventions: Creating awareness on the prevention of inbreeding, adoption of artificial insemination, germplasm for increased livestock productivity, upkeep of vaccination records, feed/fodder management, mineral mix, ration balancing to reduce costs, availability of local fodder, and preservation.

Criteria/Training

95 percent women candidates selected from SHGs, aged 20–55, with at least eight years of formal schooling and subsistence farmers owning at least one or two animals.

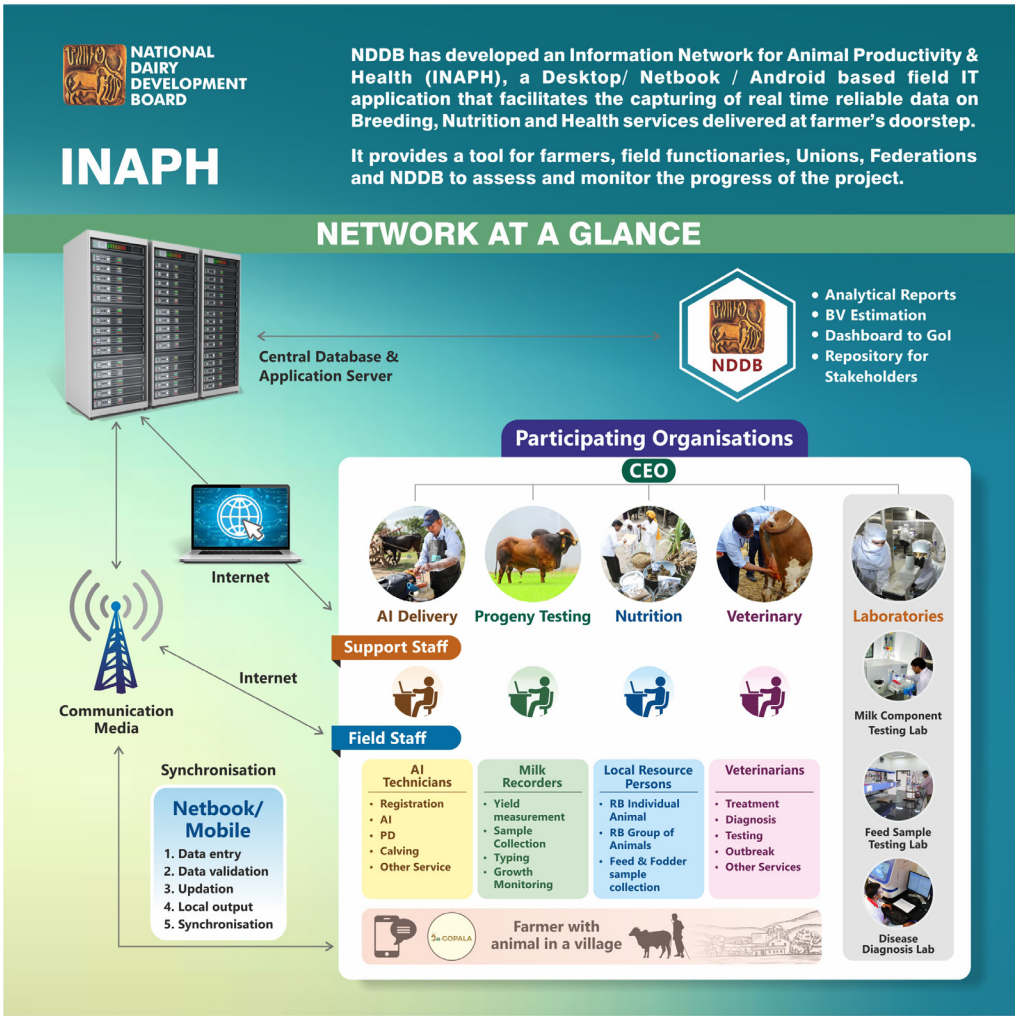
Staggered training period (an average of 42 days) in the vicinity of their homes. The curriculum focuses on administering vaccines and generic livelihood modules, such as adult learning, familiarisation with SDGs and government policies, visits to local fodder farms, artificial insemination methods, agro-ecological practices, clean milk production, linkages to dairy value chains, manure management, access to financial tools, animal insurance, public speaking, and participatory timely action plans.

Post-training segments cover assessments and monitoring of services using apps such as the Pashu Sakhi app and the A-HELP (Accredited Agent for Health and Extension of Livestock Production) programme, which is being rolled out in many States; charging nominal fees for services; and gaining additional incomes from selling feed mixtures and animal trade. *Pashu Sakhis* are paid a monthly honorarium ranging between INR 6,000 and INR 7,500, depending on frequency of one round every 20 days.

Going Digital

Ear-tagging for livestock will feed into the digital database for Pashu Aadhar, also known as the Information Network for Animal Productivity and Health (INAPH), and will be the largest in the world (Figure 1). The network will facilitate information through digital mediums, such as the E-Pashu Haat and the Bakri-Mitra App, which provides information on goat-farming methods. Monitoring and assessments for services is also done through the Pashu Sakhi Tracker. Figure 1 also illustrates the process by which the National Dairy Development Board (NDDB) captures real-time data.

Figure 1. Animal Productivity & Health (INAPH) Field IT Application



Source: National Dairy Development Board[45]

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Endnotes

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